



## SEQUENCE LISTING

<110> Kawasaki, Hiroaki  
Graybiel, Ann  
Housman, David

## <120> Genes Integrating Signal Transduction Pathways

<130> MIT-103

<140> US 09/422,999  
<141> 1999-10-22

<150> US 60/105,507  
<151> 1998-10-23

<150> US 60/108,685  
<151> 1998-11-16

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<170> PatentIn version 3.3

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Met Ala Gly Thr Leu  
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Phe Pro Ala Glu Phe Asp Leu Asn Pro Glu Leu Ala Glu Gln Ile Lys	
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Leu Ile Asp Ile Asp Ser Val Pro Thr Tyr Lys Trp Lys Arg Gln Val	
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Thr Gln Arg Asn Pro Val Gly Gln Lys Lys Arg Lys Met Ser Leu Leu	
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Val Thr His Gly Cys Thr Val Asp Asn Pro Val Leu Glu Arg Phe Ile	
185 190 195	
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Lys Pro Thr Ala Pro Gln Arg Ala Leu Val Ile Thr His Phe Val His	
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Val Val Gly Gly Leu Ser His Ser Ser Ile Ser Arg Leu Lys Glu Thr	
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His Ser His Val Ser Pro Glu Thr Ile Lys Leu Trp Glu Gly Leu Thr	
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Glu Leu Val Thr Ala Thr Gly Asn Tyr Gly Asn Tyr Arg Arg Arg Leu	
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Asp Leu Val Ala Leu Gln Leu Ala Leu Pro Asp Trp Leu Asp Pro Ala			
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cgg acc cggt ctc aac ggg gcc aag atg aag cag ctc ttt agc atc ctg			1183
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360	365	370	
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Glu Asp Glu Leu Tyr Gln Leu Ser Leu Gln Arg Glu Pro Arg Ser Lys			
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Ser Ser Pro Thr Ser Pro Thr Ser Cys Thr Pro Pro Pro Arg Pro Pro			
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535

540

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Ala Pro Arg Lys Pro Cys His Gly Ser Arg Ala Gly Pro Lys Gly Arg  
10 15 20 25

cta gag gcc aaa tca acc aac agt cct ctc cct gcc cag ccc agc ttg 267  
Leu Glu Ala Lys Ser Thr Asn Ser Pro Leu Pro Ala Gln Pro Ser Leu  
30 35 40

gcc cag atc acc cag ttc cga atg atg gtg tcc ctg gga cat ctg gcc 315  
Ala Gln Ile Thr Gln Phe Arg Met Met Val Ser Leu Gly His Leu Ala  
45 50 55

aaa gga gcc agc ctg gat gat ctt att gac agc tgc att caa tct ttc 363  
Lys Gly Ala Ser Leu Asp Asp Leu Ile Asp Ser Cys Ile Gln Ser Phe  
60 65 70

gat gca gat gga aac ctg tgt cga agt aac cag ctg tta caa gtc atg			411
Asp Ala Asp Gly Asn Leu Cys Arg Ser Asn Gln Leu Leu Gln Val Met			
75	80	85	
cta acc atg cac cga atc atc atc tcc tcg gcc gag ctg ctg caa aaa			459
Leu Thr Met His Arg Ile Ile Ser Ser Ala Glu Leu Leu Gln Lys			
90	95	100	105
ctc atg aat cta tat aag gac gcc ctg gaa aag aat tct cca gga att			507
Leu Met Asn Leu Tyr Lys Asp Ala Leu Glu Lys Asn Ser Pro Gly Ile			
110	115	120	
tgc ttg aag atc tgc tat ttt gtc agg tat tgg ata aca gaa ttc tgg			555
Cys Leu Lys Ile Cys Tyr Phe Val Arg Tyr Trp Ile Thr Glu Phe Trp			
125	130	135	
atc atg ttc aaa atg gat gcc agc ttg acc agc acc atg gaa gag ttt			603
Ile Met Phe Lys Met Asp Ala Ser Leu Thr Ser Thr Met Glu Glu Phe			
140	145	150	
cag gac ctg gtg aaa gcc aat ggt gag gag tcc cac tgc cac ctc atc			651
Gln Asp Leu Val Lys Ala Asn Gly Glu Glu Ser His Cys His Leu Ile			
155	160	165	
gac acg aca caa att aat tct cga gac tgg tcc agg aaa ctg act cag			699
Asp Thr Thr Gln Ile Asn Ser Arg Asp Trp Ser Arg Lys Leu Thr Gln			
170	175	180	185
agg ata aaa tca aat acc agc aag aag cgg aaa gtg tcc ctg ctg ttt			747
Arg Ile Lys Ser Asn Thr Ser Lys Lys Arg Lys Val Ser Leu Leu Phe			
190	195	200	
gac cat ctt gaa cct gaa gaa ctg tct gaa cac ctc acc tac ctt gag			795
Asp His Leu Glu Pro Glu Glu Leu Ser Glu His Leu Thr Tyr Leu Glu			
205	210	215	
ttc aag tcc ttc cga cgg ata tct ttc tct gat tat cag aat tac ctt			843
Phe Lys Ser Phe Arg Arg Ile Ser Phe Ser Asp Tyr Gln Asn Tyr Leu			
220	225	230	
gta aac agc tgc gta aag gag aac ccc acc atg gag cgg tcc att gcc			891
Val Asn Ser Cys Val Lys Glu Asn Pro Thr Met Glu Arg Ser Ile Ala			
235	240	245	
ctg tgc aat ggc atc tcc cag tgg gta caa ctg atg gtt ctc agc cgt			939
Leu Cys Asn Gly Ile Ser Gln Trp Val Gln Leu Met Val Leu Ser Arg			
250	255	260	265
ccc acc cca cag ctc cgg gca gag gtc ttc atc aag ttc atc cat gtg			987
Pro Thr Pro Gln Leu Arg Ala Glu Val Phe Ile Lys Phe Ile His Val			
270	275	280	
gct cag aag ctc cac cag cta cag aac ttc aac acg cta atg gct gtg			1035
Ala Gln Lys Leu His Gln Leu Gln Asn Phe Asn Thr Leu Met Ala Val			
285	290	295	

atc ggg gga ctg tgt cac agc tcc atc tcc agg ctc aag gag aca agt Ile Gly Gly Leu Cys His Ser Ser Ile Ser Arg Leu Lys Glu Thr Ser 300 305 310	1083
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ctg ctg tcc tcc tgc aga aac tat gac aac tac agg cga gcc tat ggt Leu Leu Ser Ser Cys Arg Asn Tyr Asp Asn Tyr Arg Arg Ala Tyr Gly 330 335 340 345	1179
gag tgc acc cac ttc aaa atc ccc ata ctg ggt gtg cac ctc aag gac Glu Cys Thr His Phe Lys Ile Pro Ile Leu Gly Val His Leu Lys Asp 350 355 360	1227
ctc ata tcc cta tat gaa gcc atg cct gac tac ctg gaa gac ggg aag Leu Ile Ser Leu Tyr Glu Ala Met Pro Asp Tyr Leu Glu Asp Gly Lys 365 370 375	1275
gtg aat gtc caa aag ctc ctg gcc ctt tac aat cac atc aat gag ttg Val Asn Val Gln Lys Leu Leu Ala Leu Tyr Asn His Ile Asn Glu Leu 380 385 390	1323
gtc cag ctg cag gac gtg gcc cca cca ttg gat gcc aac aag gac ctg Val Gln Leu Gln Asp Val Ala Pro Pro Leu Asp Ala Asn Lys Asp Leu 395 400 405	1371
gtg cac ctg ctg acg tta tcc ctg gat cta tac tac acc gaa gat gaa Val His Leu Leu Thr Leu Ser Leu Asp Leu Tyr Tyr Thr Glu Asp Glu 410 415 420 425	1419
atc tat gag ctt tcc tac gcc cgt gaa cca agg aac cac agg gcc ccg Ile Tyr Glu Leu Ser Tyr Ala Arg Glu Pro Arg Asn His Arg Ala Pro 430 435 440	1467
cca ctg aca cct tcg aag cca cca gtt gta gtg gac tgg gcc tct gga Pro Leu Thr Pro Ser Lys Pro Pro Val Val Val Asp Trp Ala Ser Gly 445 450 455	1515
gtg tct ccc aaa cct gac ccg aag acc atc agc aaa cac gtc caa agg Val Ser Pro Lys Pro Asp Pro Lys Thr Ile Ser Lys His Val Gln Arg 460 465 470	1563
atg gtg gat tct gtc ttt aag aac tat gat ctc gac cag gat gga tat Met Val Asp Ser Val Phe Lys Asn Tyr Asp Leu Asp Gln Asp Gly Tyr 475 480 485	1611
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atc aca gcc tac ttc atg agg gcc agc tcc atc tat tcc aag ctg ggc	1755

Ile Thr Ala Tyr Phe Met Arg Ala Ser Ser Ile Tyr Ser Lys Leu Gly			
525	530	535	
cta ggc ttt cca cac aac ttt caa gag acc act tac ctg aag ccc acc			1803
Leu Gly Phe Pro His Asn Phe Gln Glu Thr Thr Tyr Leu Lys Pro Thr			
540	545	550	
ttc tgt gac aac tgt gct ggc ttt ctc tgg ggt gtg atc aag caa ggc			1851
Phe Cys Asp Asn Cys Ala Gly Phe Leu Trp Gly Val Ile Lys Gln Gly			
555	560	565	
tat cgc tgt aaa gac tgt ggg atg aac tgc cac aaa cag tgc aaa gac			1899
Tyr Arg Cys Lys Asp Cys Gly Met Asn Cys His Lys Gln Cys Lys Asp			
570	575	580	585
ctg gta gtg ttt gag tgc aag aaa cga tcc aag agc ccg gcg gta tcc			1947
Leu Val Val Phe Glu Cys Lys Arg Ser Lys Ser Pro Ala Val Ser			
590	595	600	
aca gaa aac atc agc tct gtg gtc atg tcc act ctt tgt cca ctg			1995
Thr Glu Asn Ile Ser Ser Val Val Pro Met Ser Thr Leu Cys Pro Leu			
605	610	615	
gga acc aaa gat ctg ctc cat gca ccc gaa gaa gga tct ttc att ttc			2043
Gly Thr Lys Asp Leu Leu His Ala Pro Glu Glu Gly Ser Phe Ile Phe			
620	625	630	
cag aat gga gag gtt gtg gac cac agt gag gag agc aag gat agg acc			2091
Gln Asn Gly Glu Val Val Asp His Ser Glu Glu Ser Lys Asp Arg Thr			
635	640	645	
atc atg ctc ttg ggc gta tcc tca cag aaa att tca gtt cgg ctg aag			2139
Ile Met Leu Leu Gly Val Ser Ser Gln Lys Ile Ser Val Arg Leu Lys			
650	655	660	665
agg act gtt gcc cac aag acc acc cag aca gaa tca ttt cct tgg gtt			2187
Arg Thr Val Ala His Lys Thr Thr Gln Thr Glu Ser Phe Pro Trp Val			
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ggc ggc gag atg ccc cct ggt cac ttt gtg ctg act tct cca aga aag			2235
Gly Gly Glu Met Pro Pro Gly His Phe Val Leu Thr Ser Pro Arg Lys			
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tca gca caa ggg gct ctt tat gtg cac agt cca gca tct ccg tgc ccc			2283
Ser Ala Gln Gly Ala Leu Tyr Val His Ser Pro Ala Ser Pro Cys Pro			
700	705	710	
agc cca gca ctg gtc cgg aag cgg gca ttc gtc aag tgg gag aac aaa			2331
Ser Pro Ala Leu Val Arg Lys Arg Ala Phe Val Lys Trp Glu Asn Lys			
715	720	725	
gag tcc ctt atc aaa cca aaa cca gag ctt cac ctc agg ctc cgg acc			2379
Glu Ser Leu Ile Lys Pro Lys Pro Glu Leu His Leu Arg Leu Arg Thr			
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tac caa gaa ctg gaa cag gag gta aat acc ctg agg gca gat aac gat			2427
Tyr Gln Glu Leu Glu Gln Glu Val Asn Thr Leu Arg Ala Asp Asn Asp			

750	755	760	
gct ctg aag atc cag ctg aag tat gca cag aaa caa ata gaa tcc ctg Ala Leu Lys Ile Gln Leu Lys Tyr Ala Gln Lys Gln Ile Glu Ser Leu			2475
765	770	775	
cag ctt ggc aaa agc aat cac gtc tta gca cag atg gac cac ggt gat Gln Leu Gly Lys Ser Asn His Val Leu Ala Gln Met Asp His Gly Asp			2523
780	785	790	
ggt act taatccagaa attcaaggaa cagaatctgc agacgggttt actggatct Gly Thr			2579
795			
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Gly Ser Arg Ala Gly Pro Lys Gly Arg Leu Glu Ala Lys Ser Thr Asn  
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Ser Pro Leu Pro Ala Gln Pro Ser Leu Ala Gln Ile Thr Gln Phe Arg  
35 40 45

Met Met Val Ser Leu Gly His Leu Ala Lys Gly Ala Ser Leu Asp Asp  
50 55 60

Leu Ile Asp Ser Cys Ile Gln Ser Phe Asp Ala Asp Gly Asn Leu Cys  
65 70 75 80

Arg Ser Asn Gln Leu Leu Gln Val Met Leu Thr Met His Arg Ile Ile  
85 90 95

Ile Ser Ser Ala Glu Leu Leu Gln Lys Leu Met Asn Leu Tyr Lys Asp  
100 105 110

Ala Leu Glu Lys Asn Ser Pro Gly Ile Cys Leu Lys Ile Cys Tyr Phe  
115 120 125

Val Arg Tyr Trp Ile Thr Glu Phe Trp Ile Met Phe Lys Met Asp Ala  
130 135 140

Ser Leu Thr Ser Thr Met Glu Glu Phe Gln Asp Leu Val Lys Ala Asn  
145 150 155 160

Gly Glu Glu Ser His Cys His Leu Ile Asp Thr Thr Gln Ile Asn Ser  
165 170 175

Arg Asp Trp Ser Arg Lys Leu Thr Gln Arg Ile Lys Ser Asn Thr Ser  
180 185 190

Lys Lys Arg Lys Val Ser Leu Leu Phe Asp His Leu Glu Pro Glu Glu  
195 200 205

Leu Ser Glu His Leu Thr Tyr Leu Glu Phe Lys Ser Phe Arg Arg Ile  
210 215 220

Ser Phe Ser Asp Tyr Gln Asn Tyr Leu Val Asn Ser Cys Val Lys Glu  
225 230 235 240

Asn Pro Thr Met Glu Arg Ser Ile Ala Leu Cys Asn Gly Ile Ser Gln  
245 250 255

Trp Val Gln Leu Met Val Leu Ser Arg Pro Thr Pro Gln Leu Arg Ala  
260 265 270

Glu Val Phe Ile Lys Phe Ile His Val Ala Gln Lys Leu His Gln Leu  
275 280 285

Gln Asn Phe Asn Thr Leu Met Ala Val Ile Gly Gly Leu Cys His Ser  
290 295 300

Ser Ile Ser Arg Leu Lys Glu Thr Ser Ser His Val Pro His Glu Ile  
305 310 315 320

Asn Lys Val Leu Gly Glu Met Thr Glu Leu Leu Ser Ser Cys Arg Asn  
325 330 335

Tyr Asp Asn Tyr Arg Arg Ala Tyr Gly Glu Cys Thr His Phe Lys Ile  
340 345 350

Pro Ile Leu Gly Val His Leu Lys Asp Leu Ile Ser Leu Tyr Glu Ala  
355 360 365

Met Pro Asp Tyr Leu Glu Asp Gly Lys Val Asn Val Gln Lys Leu Leu  
370 375 380

Ala Leu Tyr Asn His Ile Asn Glu Leu Val Gln Leu Gln Asp Val Ala  
385 390 395 400

Pro Pro Leu Asp Ala Asn Lys Asp Leu Val His Leu Leu Thr Leu Ser  
405 410 415

Leu Asp Leu Tyr Tyr Thr Glu Asp Glu Ile Tyr Glu Leu Ser Tyr Ala  
420 425 430

Arg Glu Pro Arg Asn His Arg Ala Pro Pro Leu Thr Pro Ser Lys Pro  
435 440 445

Pro Val Val Val Asp Trp Ala Ser Gly Val Ser Pro Lys Pro Asp Pro

450

455

460

Lys Thr Ile Ser Lys His Val Gln Arg Met Val Asp Ser Val Phe Lys  
465 470 475 480

Asn Tyr Asp Leu Asp Gln Asp Gly Tyr Ile Ser Gln Glu Glu Phe Glu  
485 490 495

Lys Ile Ala Ala Ser Phe Pro Phe Ser Phe Cys Val Met Asp Lys Asp  
500 505 510

Arg Glu Gly Leu Ile Ser Arg Asp Glu Ile Thr Ala Tyr Phe Met Arg  
515 520 525

Ala Ser Ser Ile Tyr Ser Lys Leu Gly Leu Gly Phe Pro His Asn Phe  
530 535 540

Gln Glu Thr Thr Tyr Leu Lys Pro Thr Phe Cys Asp Asn Cys Ala Gly  
545 550 555 560

Phe Leu Trp Gly Val Ile Lys Gln Gly Tyr Arg Cys Lys Asp Cys Gly  
565 570 575

Met Asn Cys His Lys Gln Cys Lys Asp Leu Val Val Phe Glu Cys Lys  
580 585 590

Lys Arg Ser Lys Ser Pro Ala Val Ser Thr Glu Asn Ile Ser Ser Val  
595 600 605

Val Pro Met Ser Thr Leu Cys Pro Leu Gly Thr Lys Asp Leu Leu His  
610 615 620

Ala Pro Glu Glu Gly Ser Phe Ile Phe Gln Asn Gly Glu Val Val Asp  
625 630 635 640

His Ser Glu Glu Ser Lys Asp Arg Thr Ile Met Leu Leu Gly Val Ser  
645 650 655

Ser Gln Lys Ile Ser Val Arg Leu Lys Arg Thr Val Ala His Lys Thr  
660 665 670

Thr Gln Thr Glu Ser Phe Pro Trp Val Gly Gly Glu Met Pro Pro Gly  
675 680 685

His Phe Val Leu Thr Ser Pro Arg Lys Ser Ala Gln Gly Ala Leu Tyr  
690 695 700

Val His Ser Pro Ala Ser Pro Cys Pro Ser Pro Ala Leu Val Arg Lys  
705 710 715 720

Arg Ala Phe Val Lys Trp Glu Asn Lys Glu Ser Leu Ile Lys Pro Lys  
725 730 735

Pro Glu Leu His Leu Arg Leu Arg Thr Tyr Gln Glu Leu Glu Gln Glu  
740 745 750

Val Asn Thr Leu Arg Ala Asp Asn Asp Ala Leu Lys Ile Gln Leu Lys  
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Tyr Ala Gln Lys Gln Ile Glu Ser Leu Gln Leu Gly Lys Ser Asn His  
770 775 780

Val Leu Ala Gln Met Asp His Gly Asp Gly Thr  
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Met Gly Thr Leu  
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ggc aag gcg aga gag gct ccg cgg aaa cct tcc cat ggc tgc aga gct 163  
Gly Lys Ala Arg Glu Ala Pro Arg Lys Pro Ser His Gly Cys Arg Ala  
5 10 15 20

gcc tct aaa gca aga cta gag gca aag cca gcc aac agc ccc ttc ccc 211  
Ala Ser Lys Ala Arg Leu Glu Ala Lys Pro Ala Asn Ser Pro Phe Pro  
25 30 35

tcc cat ccc agc ttg gcc cac atc acc cag ttc cga atg atg gtg tct 259  
Ser His Pro Ser Leu Ala His Ile Thr Gln Phe Arg Met Met Val Ser

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ctg gga cat tta gcc aaa gga gcc agc ctg gac gat ctc att gac agc Leu Gly His Leu Ala Lys Gly Ala Ser Leu Asp Asp Leu Ile Asp Ser 55	60	65	307
tgc att caa tct ttt gat gca gat gga aac ctg tgt cga agt aac caa Cys Ile Gln Ser Phe Asp Ala Asp Gly Asn Leu Cys Arg Ser Asn Gln 70	75	80	355
ctg ttg caa gtc atg ctg acc atg cac cga att gtc atc tcc tct gca Leu Leu Gln Val Met Leu Thr Met His Arg Ile Val Ile Ser Ser Ala 85	90	95	403
gaa ctg ctc caa aaa gtt atc acc ctc tat aag gat gct ttg gca aag Glu Leu Leu Gln Lys Val Ile Thr Leu Tyr Lys Asp Ala Leu Ala Lys 105	110	115	451
aat tca cca gga ctt tgc ctg aag atc tgt tat ttt gta agg tat tgg Asn Ser Pro Gly Leu Cys Leu Lys Ile Cys Tyr Phe Val Arg Tyr Trp 120	125	130	499
ata aca gaa ttc tgg gtc atg ttt aaa atg gac gcc agc ttg aca gac Ile Thr Glu Phe Trp Val Met Phe Lys Met Asp Ala Ser Leu Thr Asp 135	140	145	547
act atg gag gag ttt cag gaa ctg gtg aaa gct aag ggt gag gag tta Thr Met Glu Glu Phe Gln Glu Leu Val Lys Ala Lys Gly Glu Glu Leu 150	155	160	595
cat tgc cgc ctg att gac aca act caa atc aat gcc cgt gac tgg tcc His Cys Arg Leu Ile Asp Thr Thr Gln Ile Asn Ala Arg Asp Trp Ser 165	170	175	643
agg aaa ctt act caa agg ata aaa tca aat acc agc aag aaa cgg aaa Arg Lys Leu Thr Gln Arg Ile Lys Ser Asn Thr Ser Lys Lys Arg Lys 185	190	195	691
gtc tcc ctg ctc ttt gac cat ctg gaa cca gaa gag cta tcc gag cac Val Ser Leu Leu Phe Asp His Leu Glu Pro Glu Glu Leu Ser Glu His 200	205	210	739
ctc acc tac ctt gag ttc aag tct ttc cgg agg ata tcg ttc tct gat Leu Thr Tyr Leu Glu Phe Lys Ser Phe Arg Arg Ile Ser Phe Ser Asp 215	220	225	787
tat cag aat tac ctt gta aat agc tgt gtg aag gaa aac ccc acc atg Tyr Gln Asn Tyr Leu Val Asn Ser Cys Val Lys Glu Asn Pro Thr Met 230	235	240	835
gag cga tct att gct ctg tgc aac ggc atc tcc cag tgg gta caa ctg Glu Arg Ser Ile Ala Leu Cys Asn Gly Ile Ser Gln Trp Val Gln Leu 245	250	255	883
atg gtt ctc agc cgc ccc acg ccg cag ctc cga gca gaa gtc ttc atc Met Val Leu Ser Arg Pro Thr Pro Gln Leu Arg Ala Glu Val Phe Ile 265	270	275	931

aag ttc atc cag gtg gct cag aag ctc cac caa cta cag aac ttc aat		979	
Lys Phe Ile Gln Val Ala Gln Lys Leu His Gln Leu Gln Asn Phe Asn			
280	285	290	
aca ctg atg gct gtg ata ggt ggg ctg tgt cac agc tca atc tcg agg		1027	
Thr Leu Met Ala Val Ile Gly Gly Leu Cys His Ser Ser Ile Ser Arg			
295	300	305	
ctc aag gag aca agt tcg cat gtc cca cat gaa atc aat aag gtt ctc		1075	
Leu Lys Glu Thr Ser Ser His Val Pro His Glu Ile Asn Lys Val Leu			
310	315	320	
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Gly Glu Met Thr Glu Leu Leu Ser Ser Arg Asn Tyr Asp Asn Tyr			
325	330	335	340
cg <sub>g</sub> cga gcc tat gga gag tgc acc gac ttc aag atc ccc att ctg ggt		1171	
Arg Arg Ala Tyr Gly Glu Cys Thr Asp Phe Lys Ile Pro Ile Leu Gly			
345	350	355	
gtg cat ctc aag gac ctc atc tcc ctg tat gaa gcc atg cct gac tat		1219	
Val His Leu Lys Asp Leu Ile Ser Leu Tyr Glu Ala Met Pro Asp Tyr			
360	365	370	
ctg ggg gac ggg aaa gtg aac gtc cat aag cta ctg gcc cta tac aat		1267	
Leu Gly Asp Gly Lys Val Asn Val His Lys Leu Leu Ala Leu Tyr Asn			
375	380	385	
cat atc agt gaa ttg gtc cag ctg caa gag gtg gcc cca ccc ttg gag		1315	
His Ile Ser Glu Leu Val Gln Leu Gln Glu Val Ala Pro Pro Leu Glu			
390	395	400	
gct aac aag gac ttg gta cac ttg ctg acg tta tcc ctg gat ctt tac		1363	
Ala Asn Lys Asp Leu Val His Leu Leu Thr Leu Ser Leu Asp Leu Tyr			
405	410	415	420
tac act gag gat gaa atc tat gag ctt tcc tat gcc cgg gaa cca agg		1411	
Tyr Thr Glu Asp Glu Ile Tyr Glu Leu Ser Tyr Ala Arg Glu Pro Arg			
425	430	435	
aac cac aga gct cca cca cta aca cct tca aag cca cca gta gta gtg		1459	
Asn His Arg Ala Pro Pro Leu Thr Pro Ser Lys Pro Pro Val Val Val			
440	445	450	
gac tgg gct tct gga gtg tct ccc aaa cct gat cca aaa acc att agc		1507	
Asp Trp Ala Ser Gly Val Ser Pro Lys Pro Asp Pro Lys Thr Ile Ser			
455	460	465	
aaa cac gtc cag agg atg gtg gat tct gtc ttc aag aac tat gat cac		1555	
Lys His Val Gln Arg Met Val Asp Ser Val Phe Lys Asn Tyr Asp His			
470	475	480	
gac cag gat gga tac att tct cag gaa gaa ttt gaa aag att gct gcg		1603	
Asp Gln Asp Gly Tyr Ile Ser Gln Glu Glu Phe Glu Lys Ile Ala Ala			
485	490	495	500

agt ttt cca ttt tcc ttc tgt gtg atg gac aaa gac agg gaa ggc ctc	505	510	515	1651
Ser Phe Pro Phe Ser Phe Cys Val Met Asp Lys Asp Arg Glu Gly Leu				
atc agc agg gat gag atc aca gcc tac ttc atg aga gcc agc tca atc	520	525	530	1699
Ile Ser Arg Asp Glu Ile Thr Ala Tyr Phe Met Arg Ala Ser Ser Ile				
tat tcc aag ctg ggc ctg ggc ttt cct cac aac ttc caa gag acc acc	535	540	545	1747
Tyr Ser Lys Leu Gly Leu Gly Phe Pro His Asn Phe Gln Glu Thr Thr				
tac ctg aag ccc act ttt tgt gac aac tgt gct gga ttt ctc tgg gga	550	555	560	1795
Tyr Leu Lys Pro Thr Phe Cys Asp Asn Cys Ala Gly Phe Leu Trp Gly				
gtg atc aaa caa gga tat cga tgt aaa gac tgc ggg atg aac tgt cac	565	570	575	1843
Val Ile Lys Gln Gly Tyr Arg Cys Lys Asp Cys Gly Met Asn Cys His				
aaa caa tgc aaa gat ctg gtt gtg ttt gag tgt aag aag cga gcc aag	585	590	595	1891
Lys Gln Cys Lys Asp Leu Val Val Phe Glu Cys Lys Arg Ala Lys				
aac cca gta gct ccc aca gag aac aac act tct gtg ggg cca gtg tcc	600	605	610	1939
Asn Pro Val Ala Pro Thr Glu Asn Asn Thr Ser Val Gly Pro Val Ser				
aac ctt tgc tca ttg gga gcc aaa gat ctg ctc cat gca cct gag gaa	615	620	625	1987
Asn Leu Cys Ser Leu Gly Ala Lys Asp Leu Leu His Ala Pro Glu Glu				
gga cct ttt aca ttc cct aat ggg gag gct gtg gaa cat ggt gag gag	630	635	640	2035
Gly Pro Phe Thr Phe Pro Asn Gly Glu Ala Val Glu His Gly Glu Glu				
agt aag gat cgg acc atc atg ctg atg gga gtg tcc tca cag aag att	645	650	655	2083
Ser Lys Asp Arg Thr Ile Met Leu Met Gly Val Ser Ser Gln Lys Ile				
tct ctt cgg ctg aag agg gct gtt gcc cac aag gcc acc cag act gaa	665	670	675	2131
Ser Leu Arg Leu Lys Arg Ala Val Ala His Lys Ala Thr Gln Thr Glu				
tca cag cct tgg att ggc agt gag ggc cct tca ggt ccc ttt gtg ctg	680	685	690	2179
Ser Gln Pro Trp Ile Gly Ser Glu Gly Pro Ser Gly Pro Phe Val Leu				
tct tcc cca agg aag aca gcc cag gat act cta tat gtg ctt ccc agt	695	700	705	2227
Ser Ser Pro Arg Lys Thr Ala Gln Asp Thr Leu Tyr Val Leu Pro Ser				
ccc acc tct cca tgt cct agc cca gtc ttg gtc aga aag cgg gct ttt	710	715	720	2275
Pro Thr Ser Pro Cys Pro Ser Pro Val Leu Val Arg Lys Arg Ala Phe				
gtc aag tgg gag aat aaa gac tcc ctc ata aaa tca aag gag gag ctc				2323

Val Lys Trp Glu Asn Lys Asp Ser Leu Ile Lys Ser Lys Glu Glu Leu			
725	730	735	740
cgt cac ctc aga ctg cct acc tac caa gaa ctg gaa cag gaa ata aat			2371
Arg His Leu Arg Leu Pro Thr Tyr Gln Glu Leu Glu Gln Glu Ile Asn			
745	750	755	
act ctg aaa gca gat aat gat gcc cta aag atc caa ctg aaa tat gca			2419
Thr Leu Lys Ala Asp Asn Asp Ala Leu Lys Ile Gln Leu Lys Tyr Ala			
760	765	770	
cag aag aaa ata gaa tcc ctc cag ctt gaa aaa agc aat cat gtc tta			2467
Gln Lys Lys Ile Glu Ser Leu Gln Leu Glu Lys Ser Asn His Val Leu			
775	780	785	
gct caa atg gag cag ggt gac tgt tct tagcccagaa actaaggtagc			2514
Ala Gln Met Glu Gln Gly Asp Cys Ser			
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Met Met Val Ser Leu Gly His Leu Ala Lys Gly Ala Ser Leu Asp Asp  
50 55 60

Leu Ile Asp Ser Cys Ile Gln Ser Phe Asp Ala Asp Gly Asn Leu Cys  
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Arg Ser Asn Gln Leu Leu Gln Val Met Leu Thr Met His Arg Ile Val  
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Ile Ser Ser Ala Glu Leu Leu Gln Lys Val Ile Thr Leu Tyr Lys Asp  
100 105 110

Ala Leu Ala Lys Asn Ser Pro Gly Leu Cys Leu Lys Ile Cys Tyr Phe  
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Val Arg Tyr Trp Ile Thr Glu Phe Trp Val Met Phe Lys Met Asp Ala  
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Ser Leu Thr Asp Thr Met Glu Glu Phe Gln Glu Leu Val Lys Ala Lys  
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Gly Glu Glu Leu His Cys Arg Leu Ile Asp Thr Thr Gln Ile Asn Ala  
165 170 175

Arg Asp Trp Ser Arg Lys Leu Thr Gln Arg Ile Lys Ser Asn Thr Ser  
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Lys Lys Arg Lys Val Ser Leu Leu Phe Asp His Leu Glu Pro Glu Glu  
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Leu Ser Glu His Leu Thr Tyr Leu Glu Phe Lys Ser Phe Arg Arg Ile  
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Ser Phe Ser Asp Tyr Gln Asn Tyr Leu Val Asn Ser Cys Val Lys Glu  
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Asn Pro Thr Met Glu Arg Ser Ile Ala Leu Cys Asn Gly Ile Ser Gln  
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Trp Val Gln Leu Met Val Leu Ser Arg Pro Thr Pro Gln Leu Arg Ala  
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Glu Val Phe Ile Lys Phe Ile Gln Val Ala Gln Lys Leu His Gln Leu  
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Asn Lys Val Leu Gly Glu Met Thr Glu Leu Leu Ser Ser Ser Arg Asn  
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Tyr Asp Asn Tyr Arg Arg Ala Tyr Gly Glu Cys Thr Asp Phe Lys Ile  
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Pro Ile Leu Gly Val His Leu Lys Asp Leu Ile Ser Leu Tyr Glu Ala  
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Met Pro Asp Tyr Leu Gly Asp Gly Lys Val Asn Val His Lys Leu Leu  
370 375 380

Ala Leu Tyr Asn His Ile Ser Glu Leu Val Gln Leu Gln Glu Val Ala  
385 390 395 400

Pro Pro Leu Glu Ala Asn Lys Asp Leu Val His Leu Leu Thr Leu Ser  
405 410 415

Leu Asp Leu Tyr Tyr Thr Glu Asp Glu Ile Tyr Glu Leu Ser Tyr Ala  
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Arg Glu Pro Arg Asn His Arg Ala Pro Pro Leu Thr Pro Ser Lys Pro  
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Pro Val Val Val Asp Trp Ala Ser Gly Val Ser Pro Lys Pro Asp Pro  
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Lys Thr Ile Ser Lys His Val Gln Arg Met Val Asp Ser Val Phe Lys  
465 470 475 480

Asn Tyr Asp His Asp Gln Asp Gly Tyr Ile Ser Gln Glu Glu Phe Glu  
485 490 495

Lys Ile Ala Ala Ser Phe Pro Phe Ser Phe Cys Val Met Asp Lys Asp  
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Arg Glu Gly Leu Ile Ser Arg Asp Glu Ile Thr Ala Tyr Phe Met Arg  
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Ala Ser Ser Ile Tyr Ser Lys Leu Gly Leu Gly Phe Pro His Asn Phe  
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Gln Glu Thr Thr Tyr Leu Lys Pro Thr Phe Cys Asp Asn Cys Ala Gly  
545 550 555 560

Phe Leu Trp Gly Val Ile Lys Gln Gly Tyr Arg Cys Lys Asp Cys Gly  
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Met Asn Cys His Lys Gln Cys Lys Asp Leu Val Val Phe Glu Cys Lys  
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Lys Arg Ala Lys Asn Pro Val Ala Pro Thr Glu Asn Asn Thr Ser Val  
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Gly Pro Val Ser Asn Leu Cys Ser Leu Gly Ala Lys Asp Leu Leu His  
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Ala Pro Glu Glu Gly Pro Phe Thr Phe Pro Asn Gly Glu Ala Val Glu  
625 630 635 640

His Gly Glu Glu Ser Lys Asp Arg Thr Ile Met Leu Met Gly Val Ser  
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Ser Gln Lys Ile Ser Leu Arg Leu Lys Arg Ala Val Ala His Lys Ala  
660 665 670

Thr Gln Thr Glu Ser Gln Pro Trp Ile Gly Ser Glu Gly Pro Ser Gly  
675 680 685

Pro Phe Val Leu Ser Ser Pro Arg Lys Thr Ala Gln Asp Thr Leu Tyr  
690 695 700

Val Leu Pro Ser Pro Thr Ser Pro Cys Pro Ser Pro Val Leu Val Arg  
705 710 715 720

Lys Arg Ala Phe Val Lys Trp Glu Asn Lys Asp Ser Leu Ile Lys Ser  
725 730 735

Lys Glu Glu Leu Arg His Leu Arg Leu Pro Thr Tyr Gln Glu Leu Glu  
740 745 750

Gln Glu Ile Asn Thr Leu Lys Ala Asp Asn Asp Ala Leu Lys Ile Gln  
755 760 765

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Met Val Leu Lys Arg Met His Arg Pro Arg Cys Cys  
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Ser Tyr Gln Leu Val Phe Glu His Arg Arg Pro Ser Cys Ile Gln Gly  
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Leu Arg Trp Thr Pro Leu Thr Asn Ser Glu Gly Ser Leu Asp Phe Arg  
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Val	Ser	Leu	Glu	Gln	Ala	Thr	Thr	Glu	His	Val	His	Lys	Ala	Gly	Lys	
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ctc	ctg	tac	cgt	cat	ctc	ttg	gca	acg	tac	cct	acc	ctc	atc	cga	gac	424
Leu	Leu	Tyr	Arg	His	Leu	Leu	Ala	Thr	Tyr	Pro	Thr	Leu	Ile	Arg	Asp	
										70				75		
aga	aaa	tac	cat	ctg	cga	cta	cat	cgg	cag	tgc	tgc	tct	ggc	cgg	gag	472
Arg	Lys	Tyr	His	Leu	Arg	Leu	His	Arg	Gln	Cys	Cys	Ser	Gly	Arg	Glu	
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cta	gtg	gat	ggg	atc	ttg	gct	ctg	ggt	ctt	ggg	gtc	cac	tca	cgg	agc	520
Leu	Val	Asp	Gly	Ile	Leu	Ala	Leu	Gly	Leu	Gly	Val	His	Ser	Arg	Ser	
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caa	gct	gtg	ggc	atc	tgc	cag	gtg	ttg	ctg	gat	gag	ggt	gcc	ctt	tgc	568
Gln	Ala	Val	Gly	Ile	Cys	Gln	Val	Leu	Leu	Asp	Glu	Gly	Ala	Leu	Cys	
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cat	gta	aaa	cat	gac	tgg	acc	ttc	cag	gac	cga	gac	gcc	caa	ttc	tac	616
His	Val	Lys	His	Asp	Trp	Thr	Phe	Gln	Asp	Arg	Asp	Ala	Gln	Phe	Tyr	
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aga	tcc	cct	gga	ccg	gag	ccc	cag	cct	gca	gga	act	cat	gac	gtg	gaa	664
Arg	Phe	Pro	Gly	Pro	Glu	Pro	Gln	Pro	Ala	Gly	Thr	His	Asp	Val	Glu	
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gag	gag	ctt	gtt	gag	gca	atg	gcc	cta	ctc	tcc	cag	cga	ggg	cct	gat	712
Glu	Glu	Leu	Val	Glu	Ala	Met	Ala	Leu	Leu	Ser	Gln	Arg	Gly	Pro	Asp	
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gcc	cta	ctc	act	gtt	gca	ctc	cgg	aag	tcc	ccg	ggt	cag	cgt	aca	gat	760
Ala	Leu	Leu	Thr	Val	Ala	Leu	Arg	Lys	Ser	Pro	Gly	Gln	Arg	Thr	Asp	
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gaa	gag	ctg	gac	ctc	atc	ttc	gag	gag	ctc	gta	cat	atc	aag	gcg	gtg	808
Glu	Glu	Leu	Asp	Leu	Ile	Phe	Glu	Glu	Leu	Val	His	Ile	Lys	Ala	Val	
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gct	cac	ctt	tct	aac	tcg	gtg	aaa	ccg	gaa	cta	gct	gct	gtt	ctg	ctc	856
Ala	His	Leu	Ser	Asn	Ser	Val	Lys	Arg	Glu	Leu	Ala	Ala	Val	Leu	Leu	
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ttt	gaa	cca	cac	agc	aag	gca	act	gtg	ttg	ttc	agc	cag	ggg	gac	904	
Phe	Glu	Pro	His	Ser	Lys	Ala	Gly	Thr	Val	Leu	Phe	Ser	Gln	Gly	Asp	
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aag	ggt	acc	tca	tgg	tac	att	atc	tgg	aag	gga	tct	gtc	aat	gtg	gtg	952
Lys	Gly	Thr	Ser	Trp	Tyr	Ile	Ile	Trp	Lys	Gly	Ser	Val	Asn	Val	Val	
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acc	cgt	ggc	aag	ggg	ctg	gtg	acc	acg	ttg	cac	gag	gga	gat	gac	ttt	1000
Thr	Arg	Gly	Lys	Gly	Leu	Val	Thr	Thr	Leu	His	Glu	Gly	Asp	Asp	Phe	
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Gly Gln Leu Ala Leu Val Asn Asp Ala Pro Arg Ala Ala Thr Ile Ile			
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Leu Arg Glu Asn Asn Cys His Phe Leu Arg Val Asp Lys Gln Asp Phe			
285	290	295	300
aac cgc atc atc aag gat gtg gaa gca aaa acc atg aga ctg gaa gaa			1144
Asn Arg Ile Ile Lys Asp Val Glu Ala Lys Thr Met Arg Leu Glu Glu			
305	310	315	
cac ggc aaa gtg gtg tta gtt ttg gag aga acc tct cag ggt gct ggc			1192
His Gly Lys Val Val Leu Val Leu Glu Arg Thr Ser Gln Gly Ala Gly			
320	325	330	
cct tcc cgc cct ccc acc cca ggc agg aac cga tat acg gta atg tct			1240
Pro Ser Arg Pro Pro Thr Pro Gly Arg Asn Arg Tyr Thr Val Met Ser			
335	340	345	
ggc acc cca gag aaa atc cta gaa ctc ctg ttg gag gct atg aga ccg			1288
Gly Thr Pro Glu Lys Ile Leu Glu Leu Leu Glu Ala Met Arg Pro			
350	355	360	
gat tcc agt gct cat gac cca aca gag aca ttc ctc agt gac ttc ctg			1336
Asp Ser Ser Ala His Asp Pro Thr Glu Thr Phe Leu Ser Asp Phe Leu			
365	370	375	380
ctg acg cac agt gtc ttc atg ccc tgc aca cag ctc ttt gcc gcc ctc			1384
Leu Thr His Ser Val Phe Met Pro Cys Thr Gln Leu Phe Ala Ala Leu			
385	390	395	
ctg cac cac ttc cac gtg gag cca tca gag cct gcc ggg ggc agc gag			1432
Leu His His Phe His Val Glu Pro Ser Glu Pro Ala Gly Gly Ser Glu			
400	405	410	
cag gaa cgc agc acc tac atc tgc aac aag agg cag cag att ctg cgt			1480
Gln Glu Arg Ser Thr Tyr Ile Cys Asn Lys Arg Gln Gln Ile Leu Arg			
415	420	425	
ctg gtc agc cgg tgg gtg gcc ctc tac agc ccc atg ctc cgc tca gat			1528
Leu Val Ser Arg Trp Val Ala Leu Tyr Ser Pro Met Leu Arg Ser Asp			
430	435	440	
ccc gtg gcc acc agc ttc ctc cag aaa ctc tca gac ctg gtg agc aga			1576
Pro Val Ala Thr Ser Phe Leu Gln Lys Leu Ser Asp Leu Val Ser Arg			
445	450	455	460
gat acc cga ctt agc aac ttg ctg agg gaa cag tat ccg gag aga cgg			1624
Asp Thr Arg Leu Ser Asn Leu Leu Arg Glu Gln Tyr Pro Glu Arg Arg			
465	470	475	
cga cac cac agg ttg gag aat ggc tgt ggg aat gta tct cct cag acc			1672
Arg His His Arg Leu Glu Asn Gly Cys Gly Asn Val Ser Pro Gln Thr			
480	485	490	
aag gcc cgg aat gca cct gtt tgg ttt cct aac cat gag gaa ccc ctc			1720
Lys Ala Arg Asn Ala Pro Val Trp Phe Pro Asn His Glu Glu Pro Leu			

495	500	505	
cca agc agc gct ggg gcc atc cga gtc ggg gac aaa gtc ccc tat gat Pro Ser Ser Ala Gly Ala Ile Arg Val Gly Asp Lys Val Pro Tyr Asp			1768
510	515	520	
atc tgc aga ccc gac cac tcg gtg ctg acc ctg cac ctg ccg gtg aca Ile Cys Arg Pro Asp His Ser Val Leu Thr Leu His Leu Pro Val Thr			1816
525	530	535	540
gcc tcc gtg agg gaa gtg atg gca gct ttg gcc cat gag gac cac tgg Ala Ser Val Arg Glu Val Met Ala Ala Leu Ala His Glu Asp His Trp			1864
545	550	555	
acc aag ggg cag gtg ctg gta aag gtc aat tct gcc ggt gat gtc gtt Thr Lys Gly Gln Val Leu Val Lys Val Asn Ser Ala Gly Asp Val Val			1912
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cac cct gag cag ctg ggg ccc act ctg ggt tct tct gag atg ctg gac His Pro Glu Gln Leu Gly Pro Thr Leu Gly Ser Ser Glu Met Leu Asp			2056
605	610	615	620
cta gtg agt gcc aag gac ctg gca ggc cag ctc aca gag cat gac tgg Leu Val Ser Ala Lys Asp Leu Ala Gly Gln Leu Thr Glu His Asp Trp			2104
625	630	635	
aac ctc ttc aac agg atc cac cag gtg gag ctg atc cac tat gta ctg Asn Leu Phe Asn Arg Ile His Gln Val Glu Leu Ile His Tyr Val Leu			2152
640	645	650	
ggc ccc cag cac ctg cgg gac gtc acc act gca aac ctg gag cgc ttc Gly Pro Gln His Leu Arg Asp Val Thr Thr Ala Asn Leu Glu Arg Phe			2200
655	660	665	
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670	675	680	
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685	690	695	700
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705	710	715	
gcg gtc atg ttt ggc ctc agc aac tcg gcc atc agc cgc ctg gcc cac Ala Val Met Phe Gly Leu Ser Asn Ser Ala Ile Ser Arg Leu Ala His			2392
720	725	730	

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gaa agg ttg ctg gac cct tcc tgg aac cac cga gtg tac cga ttg gct Glu Arg Leu Leu Asp Pro Ser Trp Asn His Arg Val Tyr Arg Leu Ala 750 755 760	2488
ctc acc aag ctc tct cct gtc atc cct ttc atg ccc ctg cta ctc Leu Thr Lys Leu Ser Pro Pro Val Ile Pro Phe Met Pro Leu Leu Leu 765 770 775 780	2536
aaa gac atg acc ttc att cat gaa ggg aac cac aca ctg gta gaa aac Lys Asp Met Thr Phe Ile His Glu Gly Asn His Thr Leu Val Glu Asn 785 790 795	2584
ctc atc aac ttt gag aag atg cga atg atg gcc aga gcc gtg cgg atg Leu Ile Asn Phe Glu Lys Met Arg Met Ala Arg Ala Val Arg Met 800 805 810	2632
ctc cac cac tgc cga agc cac agc acc gc <sup>g</sup> cct cta tca cca ctc aga Leu His His Cys Arg Ser His Ser Thr Ala Pro Leu Ser Pro Leu Arg 815 820 825	2680
agc cgg gtt tcc cac atc cac gag gac agc cag gca tca aga atc tcc Ser Arg Val Ser His Ile His Glu Asp Ser Gln Ala Ser Arg Ile Ser 830 835 840	2728
aca tgt tcc gag cag tcc ctg agc acc cgg agt cca gcc agc acc tgg Thr Cys Ser Glu Gln Ser Leu Ser Thr Arg Ser Pro Ala Ser Thr Trp 845 850 855 860	2776
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3373

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<212> PRT  
<213> Rattus norvegicus

<400> 10

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Val Phe Glu His Arg Arg Pro Ser Cys Ile Gln Gly Leu Arg Trp Thr  
20 25 30

Pro Leu Thr Asn Ser Glu Gly Ser Leu Asp Phe Arg Val Ser Leu Glu  
35 40 45

Gln Ala Thr Thr Glu His Val His Lys Ala Gly Lys Leu Leu Tyr Arg  
50 55 60

His Leu Leu Ala Thr Tyr Pro Thr Leu Ile Arg Asp Arg Lys Tyr His  
65 70 75 80

Leu Arg Leu His Arg Gln Cys Cys Ser Gly Arg Glu Leu Val Asp Gly  
85 90 95

Ile Leu Ala Leu Gly Leu Gly Val His Ser Arg Ser Gln Ala Val Gly  
100 105 110

Ile Cys Gln Val Leu Leu Asp Glu Gly Ala Leu Cys His Val Lys His  
115 120 125

Asp Trp Thr Phe Gln Asp Arg Asp Ala Gln Phe Tyr Arg Phe Pro Gly  
130 135 140

Pro Glu Pro Gln Pro Ala Gly Thr His Asp Val Glu Glu Leu Val  
145 150 155 160

Glu Ala Met Ala Leu Leu Ser Gln Arg Gly Pro Asp Ala Leu Leu Thr  
165 170 175

Val Ala Leu Arg Lys Ser Pro Gly Gln Arg Thr Asp Glu Glu Leu Asp  
180 185 190

Leu Ile Phe Glu Glu Leu Val His Ile Lys Ala Val Ala His Leu Ser  
195 200 205

Asn Ser Val Lys Arg Glu Leu Ala Ala Val Leu Leu Phe Glu Pro His  
210 215 220

Ser Lys Ala Gly Thr Val Leu Phe Ser Gln Gly Asp Lys Gly Thr Ser  
225 230 235 240

Trp Tyr Ile Ile Trp Lys Gly Ser Val Asn Val Val Thr Arg Gly Lys  
245 250 255

Gly Leu Val Thr Thr Leu His Glu Gly Asp Asp Phe Gly Gln Leu Ala  
260 265 270

Leu Val Asn Asp Ala Pro Arg Ala Ala Thr Ile Ile Leu Arg Glu Asn  
275 280 285

Asn Cys His Phe Leu Arg Val Asp Lys Gln Asp Phe Asn Arg Ile Ile  
290 295 300

Lys Asp Val Glu Ala Lys Thr Met Arg Leu Glu Glu His Gly Lys Val  
305 310 315 320

Val Leu Val Leu Glu Arg Thr Ser Gln Gly Ala Gly Pro Ser Arg Pro  
325 330 335

Pro Thr Pro Gly Arg Asn Arg Tyr Thr Val Met Ser Gly Thr Pro Glu  
340 345 350

Lys Ile Leu Glu Leu Leu Glu Ala Met Arg Pro Asp Ser Ser Ala  
355 360 365

His Asp Pro Thr Glu Thr Phe Leu Ser Asp Phe Leu Leu Thr His Ser  
370 375 380

Val Phe Met Pro Cys Thr Gln Leu Phe Ala Ala Leu Leu His His Phe  
385 390 395 400

His Val Glu Pro Ser Glu Pro Ala Gly Gly Ser Glu Gln Glu Arg Ser  
405 410 415

Thr Tyr Ile Cys Asn Lys Arg Gln Gln Ile Leu Arg Leu Val Ser Arg  
420 425 430

Trp Val Ala Leu Tyr Ser Pro Met Leu Arg Ser Asp Pro Val Ala Thr  
435 440 445

Ser Phe Leu Gln Lys Leu Ser Asp Leu Val Ser Arg Asp Thr Arg Leu  
450 455 460

Ser Asn Leu Leu Arg Glu Gln Tyr Pro Glu Arg Arg Arg His His Arg  
465 470 475 480

Leu Glu Asn Gly Cys Gly Asn Val Ser Pro Gln Thr Lys Ala Arg Asn  
485 490 495

Ala Pro Val Trp Phe Pro Asn His Glu Glu Pro Leu Pro Ser Ser Ala  
500 505 510

Gly Ala Ile Arg Val Gly Asp Lys Val Pro Tyr Asp Ile Cys Arg Pro  
515 520 525

Asp His Ser Val Leu Thr Leu His Leu Pro Val Thr Ala Ser Val Arg  
530 535 540

Glu Val Met Ala Ala Leu Ala His Glu Asp His Trp Thr Lys Gly Gln  
545 550 555 560

Val Leu Val Lys Val Asn Ser Ala Gly Asp Val Val Gly Leu Gln Pro  
565 570 575

Asp Ala Arg Gly Val Ala Thr Ser Leu Gly Leu Asn Glu Arg Ile Phe  
580 585 590

Val Val Asp Pro Gln Glu Val His Glu Leu Thr Pro His Pro Glu Gln  
595 600 605

Leu Gly Pro Thr Leu Gly Ser Ser Glu Met Leu Asp Leu Val Ser Ala  
610 615 620

Lys Asp Leu Ala Gly Gln Leu Thr Glu His Asp Trp Asn Leu Phe Asn  
625 630 635 640

Arg Ile His Gln Val Glu Leu Ile His Tyr Val Leu Gly Pro Gln His

645

650

655

Leu Arg Asp Val Thr Thr Ala Asn Leu Glu Arg Phe Met Arg Arg Phe  
660 665 670

Asn Glu Leu Gln Tyr Trp Val Ala Thr Glu Leu Cys Leu Cys Pro Val  
675 680 685

Pro Gly Pro Arg Ala Gln Leu Leu Arg Lys Phe Ile Lys Leu Ala Ala  
690 695 700

His Leu Lys Glu Gln Lys Asn Leu Asn Ser Phe Phe Ala Val Met Phe  
705 710 715 720

Gly Leu Ser Asn Ser Ala Ile Ser Arg Leu Ala His Thr Trp Glu Arg  
725 730 735

Leu Pro His Lys Val Arg Lys Leu Tyr Ser Ala Leu Glu Arg Leu Leu  
740 745 750

Asp Pro Ser Trp Asn His Arg Val Tyr Arg Leu Ala Leu Thr Lys Leu  
755 760 765

Ser Pro Pro Val Ile Pro Phe Met Pro Leu Leu Lys Asp Met Thr  
770 775 780

Phe Ile His Glu Gly Asn His Thr Leu Val Glu Asn Leu Ile Asn Phe  
785 790 795 800

Glu Lys Met Arg Met Met Ala Arg Ala Val Arg Met Leu His His Cys  
805 810 815

Arg Ser His Ser Thr Ala Pro Leu Ser Pro Leu Arg Ser Arg Val Ser  
820 825 830

His Ile His Glu Asp Ser Gln Ala Ser Arg Ile Ser Thr Cys Ser Glu  
835 840 845

Gln Ser Leu Ser Thr Arg Ser Pro Ala Ser Thr Trp Ala Tyr Val Gln  
850 855 860

Gln Leu Lys Val Ile Asp Asn Gln Arg Glu Leu Ser Arg Leu Ser Arg  
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Glu Leu Glu Pro

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<220>  
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<222> (216) .. (2858)

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ggcaggtggg cctggctgtg gaggatagcc cagctctggg agcaccgcgg gtgggagccc 180  
tccctgacgt ggtgcggag gggacactac tcaac atg gtg ttg aga agg atg 233  
Met Val Leu Arg Arg Met  
1 5  
cac cgg ccc cga agc tgc tcc tac cag ctg ctg gag cac cag cat 281  
His Arg Pro Arg Ser Cys Ser Tyr Gln Leu Leu Leu Glu His Gln His  
10 15 20  
ccg agc tgc atc cag ggg ctg cgc tgg aca cca ctc acc aac agc gag 329  
Pro Ser Cys Ile Gln Gly Leu Arg Trp Thr Pro Leu Thr Asn Ser Glu  
25 30 35  
gag tcc ctg gat ttc agc gag agc ctg gag cag gcc tcc aca gag cgg 377  
Glu Ser Leu Asp Phe Ser Glu Ser Leu Glu Gln Ala Ser Thr Glu Arg  
40 45 50  
gtg ctc agg gct ggg agg cag ctg cat cag cat cta ctg gcc acc tgc 425  
Val Leu Arg Ala Gly Arg Gln Leu His Gln His Leu Leu Ala Thr Cys  
55 60 65 70  
cca aac ctc atc cga gac cgg aag tac cac ctt agg ctc tat cgg cag 473  
Pro Asn Leu Ile Arg Asp Arg Lys Tyr His Leu Arg Leu Tyr Arg Gln  
75 80 85  
tgc tgc tct ggc cgg gag ctg gtg gat ggg atc ttg gcc ctg gga ctt 521  
Cys Cys Ser Gly Arg Glu Leu Val Asp Gly Ile Leu Ala Leu Gly Leu  
90 95 100  
ggg gtc cat tcc cgg agc caa gtt gtg gga atc tgc cag gtg ctg ctg 569  
Gly Val His Ser Arg Ser Gln Val Val Gly Ile Cys Gln Val Leu Leu  
105 110 115  
gat gaa ggt gcc ctc tgc cat gtg aaa cac gac tgg gcc ttc cag gac 617  
Asp Glu Gly Ala Leu Cys His Val Lys His Asp Trp Ala Phe Gln Asp

120	125	130	
cga gat gcc caa ttc tac cg	gg ttc ccc ggg ccc gag ccc gag ccc gtg		665
Arg Asp Ala Gln Phe Tyr Arg Phe Pro Gly Pro Glu Pro Glu Pro Val			
135	140	145	150
gga act cat gag atg gag gag gag ttg gcc gaa gct gtg gcc ctg ctc			713
Gly Thr His Glu Met Glu Glu Leu Ala Glu Ala Val Ala Leu Leu			
155	160	165	
tcc cag cgg ggg cct gac gcc ctg ctc act gtg gca ctt cga aag ccc			761
Ser Gln Arg Gly Pro Asp Ala Leu Leu Thr Val Ala Leu Arg Lys Pro			
170	175	180	
cca ggt cag cgc acg gat gaa gag ctg gac ctc atc ttt gag gag ctg			809
Pro Gly Gln Arg Thr Asp Glu Glu Leu Asp Leu Ile Phe Glu Glu Leu			
185	190	195	
ctg cac atc aag gct gtg gcc cac ctc tcc aac tcg gtg aag cga gaa			857
Leu His Ile Lys Ala Val Ala His Leu Ser Asn Ser Val Lys Arg Glu			
200	205	210	
tta gcg gct gtt ctg ctc ttt gaa cca cac agc aag gca ggg acc gtg			905
Leu Ala Ala Val Leu Leu Phe Glu Pro His Ser Lys Ala Gly Thr Val			
215	220	225	230
ttg ttc agc cag ggg gac aag ggc act tcg tgg tac att atc tgg aag			953
Leu Phe Ser Gln Gly Asp Lys Gly Thr Ser Trp Tyr Ile Ile Trp Lys			
235	240	245	
gga tct gtc aac gtg gtg acc cat ggc aag ggg ctg gtg acc acc ctg			1001
Gly Ser Val Asn Val Val Thr His Gly Lys Gly Leu Val Thr Thr Leu			
250	255	260	
cat gag gga gat gat ttt gga cag ctg gct ctg gtg aat gat gca ccc			1049
His Glu Gly Asp Asp Phe Gly Gln Leu Ala Leu Val Asn Asp Ala Pro			
265	270	275	
cgg gca gcc acc atc atc ctg cga gaa tac aac tgt cat ttc ctg cgt			1097
Arg Ala Ala Thr Ile Ile Leu Arg Glu Tyr Asn Cys His Phe Leu Arg			
280	285	290	
gtg gac aag cag gac ttc aac cgt atc atc aag gat gtg gag gca aag			1145
Val Asp Lys Gln Asp Phe Asn Arg Ile Ile Lys Asp Val Glu Ala Lys			
295	300	305	310
acc atg cgg ctg gaa gaa cat ggc aaa gtg gtg ctg gtg ctg gag aga			1193
Thr Met Arg Leu Glu Glu His Gly Lys Val Val Leu Val Leu Glu Arg			
315	320	325	
gcc tct cag ggc gcc ggc cct tcc cga ccc cca acc cca ggc agg aac			1241
Ala Ser Gln Gly Ala Gly Pro Ser Arg Pro Pro Thr Pro Gly Arg Asn			
330	335	340	
cgg tat aca gtg atg tct ggc act cca gat aag atc cta gag ctt ctg			1289
Arg Tyr Thr Val Met Ser Gly Thr Pro Asp Lys Ile Leu Glu Leu Leu			
345	350	355	

ttg gag gcc atg gga cta gat tcc agt gct cat gac cca aaa gaa aca Leu Glu Ala Met Gly Leu Asp Ser Ser Ala His Asp Pro Lys Glu Thr 360 365 370	1337
ttc ctc agc gac ttc ctc ctg acc cac agg gtc ttc atg ccc agc gcc Phe Leu Ser Asp Phe Leu Leu Thr His Arg Val Phe Met Pro Ser Ala 375 380 385 390	1385
caa ctc tgc gct gcc ctt ctg cac cac ttc cat gtg gag cct gcg ggt Gln Leu Cys Ala Ala Leu Leu His His Phe His Val Glu Pro Ala Gly 395 400 405	1433
ggc agc gag cag gag cgc agc acc tac gtc tgc aac aag agg cag cag Gly Ser Glu Gln Glu Arg Ser Thr Tyr Val Cys Asn Lys Arg Gln Gln 410 415 420	1481
atc ttg cgg ctg gtc agc cag tgg gtg gcc ctg tat ggc tcc atg ctc Ile Leu Arg Leu Val Ser Gln Trp Val Ala Leu Tyr Gly Ser Met Leu 425 430 435	1529
cac act gac cct gtg gcc acc agc ttc ctc cac aaa ctc tca gac ctg His Thr Asp Pro Val Ala Thr Ser Phe Leu His Lys Leu Ser Asp Leu 440 445 450	1577
gtg ggc agg gac acc cga ctc agc aac ctg ctg agg gag cag tgg cca Val Gly Arg Asp Thr Arg Leu Ser Asn Leu Leu Arg Glu Gln Trp Pro 455 460 465 470	1625
gag agg cgg cga tgc cac agg ttg gag aat ggc tgt ggg aat gca tct Glu Arg Arg Cys His Arg Leu Glu Asn Gly Cys Gly Asn Ala Ser 475 480 485	1673
cct cag atg aag gcc cgg aac ttg cct gtt tgg ctc ccc aac cag gac Pro Gln Met Lys Ala Arg Asn Leu Pro Val Trp Leu Pro Asn Gln Asp 490 495 500	1721
gag ccc ctt cct ggc agc agc tgt gcc atc caa gtt ggg gat aaa gtc Glu Pro Leu Pro Gly Ser Ser Cys Ala Ile Gln Val Gly Asp Lys Val 505 510 515	1769
ccc tat gac atc tgc cgg cca gac cac tca gtg ttg acc ctg cag ctg Pro Tyr Asp Ile Cys Arg Pro Asp His Ser Val Leu Thr Leu Gln Leu 520 525 530	1817
cct gtg aca gcc tcc gtg aga gag gtg atg gca gcg ttg gcc cag gag Pro Val Thr Ala Ser Val Arg Glu Val Met Ala Ala Leu Ala Gln Glu 535 540 545 550	1865
gat ggc tgg acc aag ggg cag gtg ctg gtg aag gtc aat tct gca ggt Asp Gly Trp Thr Lys Gly Gln Val Leu Val Lys Val Asn Ser Ala Gly 555 560 565	1913
gat gcc att ggc ctg cag cca gat gcc cgt ggt gtg gcc aca tct ctg Asp Ala Ile Gly Leu Gln Pro Asp Ala Arg Gly Val Ala Thr Ser Leu 570 575 580	1961

ggg ctc aat gag cgt ctc ttt gtt gtc aac cca cag gaa gtg cat gag Gly Leu Asn Glu Arg Leu Phe Val Val Asn Pro Gln Glu Val His Glu 585 590 595	2009
ctg atc cca cac cct gac cag ctg ggg ccc act gtg ggc tct gct gag Leu Ile Pro His Pro Asp Gln Leu Gly Pro Thr Val Gly Ser Ala Glu 600 605 610	2057
ggg ctg gac ctg gtg agt gcc aag gac ctg gca ggc cag ctg acg gac Gly Leu Asp Leu Val Ser Ala Lys Asp Leu Ala Gly Gln Leu Thr Asp 615 620 625 630	2105
cac gac tgg agc ctc ttc aac agt atc cac cag gtg gag ctg atc cac His Asp Trp Ser Leu Phe Asn Ser Ile His Gln Val Glu Leu Ile His 635 640 645	2153
tat gtg ctg ggc ccc cag cat ctg cgg gat gtc acc acc gcc aac ctg Tyr Val Leu Gly Pro Gln His Leu Arg Asp Val Thr Thr Ala Asn Leu 650 655 660	2201
gag cgc ttc atg cgc cgc ttc aat gag ctg cag tac tgg gtg gcc acc Glu Arg Phe Met Arg Arg Phe Asn Glu Leu Gln Tyr Trp Val Ala Thr 665 670 675	2249
gag ctg tgt ctc tgc ccc gtg ccc ggc ccc cgg gcc cag ctg ctc aaa Glu Leu Cys Leu Cys Pro Val Pro Gly Pro Arg Ala Gln Leu Leu Lys 680 685 690	2297
aag ttc att aag ctg gcg gcc cac ctc aag gag cag aag aat gtc aat Lys Phe Ile Lys Leu Ala Ala His Leu Lys Glu Gln Lys Asn Val Asn 695 700 705 710	2345
tcc ttc ttt gcc gtc atg ttt ggc ctc agc aac tcg ccc atc agc cgc Ser Phe Phe Ala Val Met Phe Gly Leu Ser Asn Ser Pro Ile Ser Arg 715 720 725	2393
cta gcc cac acc tgg gag cgg ctg cct cac aaa gtc cgg aag ctg tac Leu Ala His Thr Trp Glu Arg Leu Pro His Lys Val Arg Lys Leu Tyr 730 735 740	2441
tcc gcc ctc gag agg ctg ctg gat ccc tca tgg aac cac cgg gta tac Ser Ala Leu Glu Arg Leu Leu Asp Pro Ser Trp Asn His Arg Val Tyr 745 750 755	2489
cga ctg gcc ctc gcc aag ctc tcc cct ctc atc ccc ttc atg ccc Arg Leu Ala Leu Ala Lys Leu Ser Pro Pro Val Ile Pro Phe Met Pro 760 765 770	2537
ctt ctt ctc aaa gac atg acc ttc att cat gag gga aac cac aca cta Leu Leu Leu Lys Asp Met Thr Phe Ile His Glu Gly Asn His Thr Leu 775 780 785 790	2585
gtg gag aat ctc atc aac ttt gag aag atg aga atg atg gcc aga gcc Val Glu Asn Leu Ile Asn Phe Glu Lys Met Arg Met Met Ala Arg Ala 795 800 805	2633
gcg cgg atg ctg cac cac tgc cga agc cac aac cct gtg cct ctc tca	2681

Ala Arg Met Leu His His Cys Arg Ser His Asn Pro Val Pro Leu Ser			
810	815	820	
cca ctc aga agc cga gtt tcc cac ctc cac gag gac agc cag gtg gcg		2729	
Pro Leu Arg Ser Arg Val Ser His Leu His Glu Asp Ser Gln Val Ala			
825	830	835	
agg att tcc aca tgc tcg gag cag tcc ctg agc acc cgg agt cca gcc		2777	
Arg Ile Ser Thr Cys Ser Glu Gln Ser Leu Ser Thr Arg Ser Pro Ala			
840	845	850	
agc acc tgg gct tat gtc cag cag ctg aag gtc att gac aac cag cgg		2825	
Ser Thr Trp Ala Tyr Val Gln Gln Leu Lys Val Ile Asp Asn Gln Arg			
855	860	865	870
gaa ctc tcc cgc ctg tcc cga gag ctg gag cca tgaggagggg ctggactgg		2878	
Glu Leu Ser Arg Leu Ser Arg Glu Leu Glu Pro			
875	880		
agctggagca ggcacttgca gccgggaaag ccaggggtgt ccggggccaag atactcacag		2938	
gctggccaca gctgggcaag gctctccgtg gagtgactc gagtcctgg agcaggcagt		2998	
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gccaggaata acgaatgacc aagggccaag gaagggagga cagagaggcc ccaggagtgg		3118	
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Leu Leu Glu His Gln His Pro Ser Cys Ile Gln Gly Leu Arg Trp Thr		
20	25	30

Pro Leu Thr Asn Ser Glu Glu Ser Leu Asp Phe Ser Glu Ser Leu Glu		
35	40	45

Gln Ala Ser Thr Glu Arg Val Leu Arg Ala Gly Arg Gln Leu His Gln  
50 55 60

His Leu Leu Ala Thr Cys Pro Asn Leu Ile Arg Asp Arg Lys Tyr His  
65 70 75 80

Leu Arg Leu Tyr Arg Gln Cys Cys Ser Gly Arg Glu Leu Val Asp Gly  
85 90 95

Ile Leu Ala Leu Gly Leu Gly Val His Ser Arg Ser Gln Val Val Gly  
100 105 110

Ile Cys Gln Val Leu Leu Asp Glu Gly Ala Leu Cys His Val Lys His  
115 120 125

Asp Trp Ala Phe Gln Asp Arg Asp Ala Gln Phe Tyr Arg Phe Pro Gly  
130 135 140

Pro Glu Pro Glu Pro Val Gly Thr His Glu Met Glu Glu Glu Leu Ala  
145 150 155 160

Glu Ala Val Ala Leu Leu Ser Gln Arg Gly Pro Asp Ala Leu Leu Thr  
165 170 175

Val Ala Leu Arg Lys Pro Pro Gly Gln Arg Thr Asp Glu Glu Leu Asp  
180 185 190

Leu Ile Phe Glu Glu Leu Leu His Ile Lys Ala Val Ala His Leu Ser  
195 200 205

Asn Ser Val Lys Arg Glu Leu Ala Ala Val Leu Leu Phe Glu Pro His  
210 215 220

Ser Lys Ala Gly Thr Val Leu Phe Ser Gln Gly Asp Lys Gly Thr Ser  
225 230 235 240

Trp Tyr Ile Ile Trp Lys Gly Ser Val Asn Val Val Thr His Gly Lys  
245 250 255

Gly Leu Val Thr Thr Leu His Glu Gly Asp Asp Phe Gly Gln Leu Ala  
260 265 270

Leu Val Asn Asp Ala Pro Arg Ala Ala Thr Ile Ile Leu Arg Glu Tyr

275

280

285

Asn Cys His Phe Leu Arg Val Asp Lys Gln Asp Phe Asn Arg Ile Ile  
290 295 300

Lys Asp Val Glu Ala Lys Thr Met Arg Leu Glu Glu His Gly Lys Val  
305 310 315 320

Val Leu Val Leu Glu Arg Ala Ser Gln Gly Ala Gly Pro Ser Arg Pro  
325 330 335

Pro Thr Pro Gly Arg Asn Arg Tyr Thr Val Met Ser Gly Thr Pro Asp  
340 345 350

Lys Ile Leu Glu Leu Leu Leu Glu Ala Met Gly Leu Asp Ser Ser Ala  
355 360 365

His Asp Pro Lys Glu Thr Phe Leu Ser Asp Phe Leu Leu Thr His Arg  
370 375 380

Val Phe Met Pro Ser Ala Gln Leu Cys Ala Ala Leu Leu His His Phe  
385 390 395 400

His Val Glu Pro Ala Gly Gly Ser Glu Gln Glu Arg Ser Thr Tyr Val  
405 410 415

Cys Asn Lys Arg Gln Gln Ile Leu Arg Leu Val Ser Gln Trp Val Ala  
420 425 430

Leu Tyr Gly Ser Met Leu His Thr Asp Pro Val Ala Thr Ser Phe Leu  
435 440 445

His Lys Leu Ser Asp Leu Val Gly Arg Asp Thr Arg Leu Ser Asn Leu  
450 455 460

Leu Arg Glu Gln Trp Pro Glu Arg Arg Arg Cys His Arg Leu Glu Asn  
465 470 475 480

Gly Cys Gly Asn Ala Ser Pro Gln Met Lys Ala Arg Asn Leu Pro Val  
485 490 495

Trp Leu Pro Asn Gln Asp Glu Pro Leu Pro Gly Ser Ser Cys Ala Ile  
500 505 510

Gln Val Gly Asp Lys Val Pro Tyr Asp Ile Cys Arg Pro Asp His Ser  
515 520 525

Val Leu Thr Leu Gln Leu Pro Val Thr Ala Ser Val Arg Glu Val Met  
530 535 540

Ala Ala Leu Ala Gln Glu Asp Gly Trp Thr Lys Gly Gln Val Leu Val  
545 550 555 560

Lys Val Asn Ser Ala Gly Asp Ala Ile Gly Leu Gln Pro Asp Ala Arg  
565 570 575

Gly Val Ala Thr Ser Leu Gly Leu Asn Glu Arg Leu Phe Val Val Asn  
580 585 590

Pro Gln Glu Val His Glu Leu Ile Pro His Pro Asp Gln Leu Gly Pro  
595 600 605

Thr Val Gly Ser Ala Glu Gly Leu Asp Leu Val Ser Ala Lys Asp Leu  
610 615 620

Ala Gly Gln Leu Thr Asp His Asp Trp Ser Leu Phe Asn Ser Ile His  
625 630 635 640

Gln Val Glu Leu Ile His Tyr Val Leu Gly Pro Gln His Leu Arg Asp  
645 650 655

Val Thr Thr Ala Asn Leu Glu Arg Phe Met Arg Arg Phe Asn Glu Leu  
660 665 670

Gln Tyr Trp Val Ala Thr Glu Leu Cys Leu Cys Pro Val Pro Gly Pro  
675 680 685

Arg Ala Gln Leu Leu Lys Lys Phe Ile Lys Leu Ala Ala His Leu Lys  
690 695 700

Glu Gln Lys Asn Val Asn Ser Phe Phe Ala Val Met Phe Gly Leu Ser  
705 710 715 720

Asn Ser Pro Ile Ser Arg Leu Ala His Thr Trp Glu Arg Leu Pro His  
725 730 735

Lys Val Arg Lys Leu Tyr Ser Ala Leu Glu Arg Leu Leu Asp Pro Ser  
740 745 750

Trp Asn His Arg Val Tyr Arg Leu Ala Leu Ala Lys Leu Ser Pro Pro  
755 760 765

Val Ile Pro Phe Met Pro Leu Leu Leu Lys Asp Met Thr Phe Ile His  
770 775 780

Glu Gly Asn His Thr Leu Val Glu Asn Leu Ile Asn Phe Glu Lys Met  
785 790 795 800

Arg Met Met Ala Arg Ala Ala Arg Met Leu His His Cys Arg Ser His  
805 810 815

Asn Pro Val Pro Leu Ser Pro Leu Arg Ser Arg Val Ser His Leu His  
820 825 830

Glu Asp Ser Gln Val Ala Arg Ile Ser Thr Cys Ser Glu Gln Ser Leu  
835 840 845

Ser Thr Arg Ser Pro Ala Ser Thr Trp Ala Tyr Val Gln Gln Leu Lys  
850 855 860

Val Ile Asp Asn Gln Arg Glu Leu Ser Arg Leu Ser Arg Glu Leu Glu  
865 870 875 880

Pro

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ggcaggtggg cctggctgtg gaggatagcc cagctctggg agcaccgcgg gtgggagccc 180

tccctgacgt ggtgccggag gggacactac tcaac atg gtg ttg aga agg atg Met Val Leu Arg Arg Met 1 5	233
cac cgcccccga agc tgc tcc tac cag ctg ctg gag cac cag cat His Arg Pro Arg Ser Cys Ser Tyr Gln Leu Leu Glu His Gln His 10 15 20	281
ccg agc tgc atc cag ggg ctg cgc tgg aca cca ctc acc aac agc gag Pro Ser Cys Ile Gln Gly Leu Arg Trp Thr Pro Leu Thr Asn Ser Glu 25 30 35	329
gag tcc ctg gat ttc agc gag agc ctg gag cag gcc tcc aca gag cgg Glu Ser Leu Asp Phe Ser Glu Ser Leu Glu Gln Ala Ser Thr Glu Arg 40 45 50	377
gtg ctc agg gct ggg agg cag ctg cat cag cat cta ctg gcc acc tgc Val Leu Arg Ala Gly Arg Gln Leu His Gln His Leu Leu Ala Thr Cys 55 60 65 70	425
cca aac ctc atc cga gac cg <sup>g</sup> aag tac cac ctt agg ctc tat cg <sup>g</sup> cag Pro Asn Leu Ile Arg Asp Arg Lys Tyr His Leu Arg Leu Tyr Arg Gln 75 80 85	473
tgc tgc tct ggc cg <sup>g</sup> gag ctg gtg gat ggg atc ttg gcc ctg gga ctt Cys Cys Ser Gly Arg Glu Leu Val Asp Gly Ile Leu Ala Leu Gly Leu 90 95 100	521
ggg gtc cat tcc cg <sup>g</sup> agc caa gtt gtg gga atc tgc cag gtg ctg ctg Gly Val His Ser Arg Ser Gln Val Val Gly Ile Cys Gln Val Leu Leu 105 110 115	569
gat gaa ggt gcc ctc tgc cat gtg aaa cac gac tgg gcc ttc cag gac Asp Glu Gly Ala Leu Cys His Val Lys His Asp Trp Ala Phe Gln Asp 120 125 130	617
cga gat gcc caa ttc tac cg <sup>g</sup> ttc ccc ggg ccc gag ccc gag ccc gtg Arg Asp Ala Gln Phe Tyr Arg Phe Pro Gly Pro Glu Pro Glu Pro Val 135 140 145 150	665
gga act cat gag atg gag gag ttg gcc gaa gct gtg gcc ctg ctc Gly Thr His Glu Met Glu Glu Leu Ala Glu Ala Val Ala Leu Leu 155 160 165	713
tcc cag cg <sup>g</sup> ggg cct gac gcc ctg ctc act gtg gca ctt cga aag ccc Ser Gln Arg Gly Pro Asp Ala Leu Leu Thr Val Ala Leu Arg Lys Pro 170 175 180	761
cca ggt cag cgc acg gat gaa gag ctg gac ctc atc ttt gag gag ctg Pro Gly Gln Arg Thr Asp Glu Glu Leu Asp Leu Ile Phe Glu Glu Leu 185 190 195	809
ctg cac atc aag gct gtg gcc cac ctc tcc aac tcg gtg aag cga gaa Leu His Ile Lys Ala Val Ala His Leu Ser Asn Ser Val Lys Arg Glu 200 205 210	857

tta gcg gct gtt ctg ctc ttt gaa cca cac agc aag gca ggg acc gtc Leu Ala Ala Val Leu Leu Phe Glu Pro His Ser Lys Ala Gly Thr Val 215 220 225 230	905
ttg ttc agc cag ggg gac aag ggc act tcg tgg tac att atc tgg aag Leu Phe Ser Gln Gly Asp Lys Gly Thr Ser Trp Tyr Ile Ile Trp Lys 235 240 245	953
gga tct gtc aac gtg gtg acc cat ggc aag ggg ctg gtg acc acc ctg Gly Ser Val Asn Val Val Thr His Gly Lys Gly Leu Val Thr Thr Leu 250 255 260	1001
cat gag gga gat gat ttt gga cag ctg gct ctg gtg aat gat gca ccc His Glu Gly Asp Asp Phe Gly Gln Leu Ala Leu Val Asn Asp Ala Pro 265 270 275	1049
cgg gca gcc acc atc atc ctg cga gaa tac aac tgt cat ttc ctg cgt Arg Ala Ala Thr Ile Ile Leu Arg Glu Tyr Asn Cys His Phe Leu Arg 280 285 290	1097
gtg gac aag cag gac ttc aac cgt atc atc aag gat gtg gag gca aag Val Asp Lys Gln Asp Phe Asn Arg Ile Ile Lys Asp Val Glu Ala Lys 295 300 305 310	1145
acc atg cgg ctg gaa gaa cat ggc aaa gtg gtg ctg gtg ctg gag aga Thr Met Arg Leu Glu Glu His Gly Lys Val Val Leu Val Leu Glu Arg 315 320 325	1193
gcc tct cag ggc gcc ggc cct tcc cga ccc cca acc cca ggc agg aac Ala Ser Gln Gly Ala Gly Pro Ser Arg Pro Pro Thr Pro Gly Arg Asn 330 335 340	1241
cgg tat aca gtg atg tct ggc act cca gat aag atc cta gag ctt ctg Arg Tyr Thr Val Met Ser Gly Thr Pro Asp Lys Ile Leu Glu Leu Leu 345 350 355	1289
ttg gag gcc atg gga cta gat tcc agt gct cat gac cca aaa gaa aca Leu Glu Ala Met Gly Leu Asp Ser Ser Ala His Asp Pro Lys Glu Thr 360 365 370	1337
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caa ctc tgc gct gcc ctt ctg cac cac ttc cat gtg gag cct gcg ggt Gln Leu Cys Ala Ala Leu Leu His His Phe His Val Glu Pro Ala Gly 395 400 405	1433
ggc agc gag cag gag cgc agc acc tac gtc tgc aac aag agg cag cag Gly Ser Glu Gln Glu Arg Ser Thr Tyr Val Cys Asn Lys Arg Gln Gln 410 415 420	1481
atc ttg cgg ctg gtc agc cag tgg gtg gcc ctg tat ggc tcc atg ctc Ile Leu Arg Leu Val Ser Gln Trp Val Ala Leu Tyr Gly Ser Met Leu 425 430 435	1529
cac act gac cct gtg gcc acc agc ttc ctc cag aaa ctc tca gac ctg	1577

His Thr Asp Pro Val Ala Thr Ser Phe Leu Gln Lys Leu Ser Asp Leu			
440	445	450	
gtg ggc agg gac acc cga ctc agc aac ctg ctg agg gag cag tgg cca			1625
Val Gly Arg Asp Thr Arg Leu Ser Asn Leu Leu Arg Glu Gln Trp Pro			
455	460	465	470
gag agg cgg cga tgc cac agg ttg gag aat ggc tgt ggg aat gca tct			1673
Glu Arg Arg Arg Cys His Arg Leu Glu Asn Gly Cys Gly Asn Ala Ser			
475	480	485	
cct cag atg aag gtg tct gcc tgg ccc cag ttt ctt tcc tct gct cct			1721
Pro Gln Met Lys Val Ser Ala Trp Pro Gln Phe Leu Ser Ser Ala Pro			
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cct gga ctg cag gca cct tcg ccc cct gac cct gag ggg ctc tgt			1769
Pro Gly Leu Gln Ala Pro Pro Ser Pro Pro Asp Pro Glu Gly Leu Cys			
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ggg cgt ggg aag ctc tcc tcc cac aga cac acc ctt ggg tct ctg ata			1817
Gly Arg Gly Lys Leu Ser Ser His Arg His Thr Leu Gly Ser Leu Ile			
520	525	530	
ggt gtt cac ggg gcc ctt gct gca tgt ggt gcc ctg ggc cag gcc gtg			1865
Gly Val His Gly Ala Leu Ala Ala Cys Gly Ala Leu Gly Gln Ala Val			
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cca gga ggc gca gag gcc taaggtggcc tccctcctcg cccactccct			1913
Pro Gly Gly Ala Glu Ala			
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 <212> PRT  
 <213> Homo sapiens

<400> 14

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Pro Leu Thr Asn Ser Glu Glu Ser Leu Asp Phe Ser Glu Ser Leu Glu  
35 40 45

Gln Ala Ser Thr Glu Arg Val Leu Arg Ala Gly Arg Gln Leu His Gln  
50 55 60

His Leu Leu Ala Thr Cys Pro Asn Leu Ile Arg Asp Arg Lys Tyr His  
65 70 75 80

Leu Arg Leu Tyr Arg Gln Cys Cys Ser Gly Arg Glu Leu Val Asp Gly  
85 90 95

Ile Leu Ala Leu Gly Leu Gly Val His Ser Arg Ser Gln Val Val Gly  
100 105 110

Ile Cys Gln Val Leu Leu Asp Glu Gly Ala Leu Cys His Val Lys His  
115 120 125

Asp Trp Ala Phe Gln Asp Arg Asp Ala Gln Phe Tyr Arg Phe Pro Gly  
130 135 140

Pro Glu Pro Glu Pro Val Gly Thr His Glu Met Glu Glu Leu Ala  
145 150 155 160

Glu Ala Val Ala Leu Leu Ser Gln Arg Gly Pro Asp Ala Leu Leu Thr  
165 170 175

Val Ala Leu Arg Lys Pro Pro Gly Gln Arg Thr Asp Glu Glu Leu Asp  
180 185 190

Leu Ile Phe Glu Glu Leu Leu His Ile Lys Ala Val Ala His Leu Ser  
195 200 205

Asn Ser Val Lys Arg Glu Leu Ala Ala Val Leu Leu Phe Glu Pro His  
210 215 220

Ser Lys Ala Gly Thr Val Leu Phe Ser Gln Gly Asp Lys Gly Thr Ser  
225 230 235 240

Trp Tyr Ile Ile Trp Lys Gly Ser Val Asn Val Val Thr His Gly Lys  
245 250 255

Gly Leu Val Thr Thr Leu His Glu Gly Asp Asp Phe Gly Gln Leu Ala  
260 265 270

Leu Val Asn Asp Ala Pro Arg Ala Ala Thr Ile Ile Leu Arg Glu Tyr  
275 280 285

Asn Cys His Phe Leu Arg Val Asp Lys Gln Asp Phe Asn Arg Ile Ile  
290 295 300

Lys Asp Val Glu Ala Lys Thr Met Arg Leu Glu Glu His Gly Lys Val  
305 310 315 320

Val Leu Val Leu Glu Arg Ala Ser Gln Gly Ala Gly Pro Ser Arg Pro  
325 330 335

Pro Thr Pro Gly Arg Asn Arg Tyr Thr Val Met Ser Gly Thr Pro Asp  
340 345 350

Lys Ile Leu Glu Leu Leu Glu Ala Met Gly Leu Asp Ser Ser Ala  
355 360 365

His Asp Pro Lys Glu Thr Phe Leu Ser Asp Phe Leu Leu Thr His Arg  
370 375 380

Val Phe Met Pro Ser Ala Gln Leu Cys Ala Ala Leu Leu His His Phe  
385 390 395 400

His Val Glu Pro Ala Gly Gly Ser Glu Gln Glu Arg Ser Thr Tyr Val  
405 410 415

Cys Asn Lys Arg Gln Gln Ile Leu Arg Leu Val Ser Gln Trp Val Ala  
420 425 430

Leu Tyr Gly Ser Met Leu His Thr Asp Pro Val Ala Thr Ser Phe Leu  
435 440 445

Gln Lys Leu Ser Asp Leu Val Gly Arg Asp Thr Arg Leu Ser Asn Leu  
450 455 460

Leu Arg Glu Gln Trp Pro Glu Arg Arg Arg Cys His Arg Leu Glu Asn  
465 470 475 480

Gly Cys Gly Asn Ala Ser Pro Gln Met Lys Val Ser Ala Trp Pro Gln  
485 490 495

Phe Leu Ser Ser Ala Pro Pro Gly Leu Gln Ala Pro Pro Ser Pro Pro  
500 505 510

Asp Pro Glu Gly Leu Cys Gly Arg Gly Lys Leu Ser Ser His Arg His  
515 520 525

Thr Leu Gly Ser Leu Ile Gly Val His Gly Ala Leu Ala Ala Cys Gly  
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Ala Leu Gly Gln Ala Val Pro Gly Gly Ala Glu Ala  
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<212> DNA  
<213> Rattus norvegicus

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Gly Val Leu Lys Pro Asn Asp Val Ser Val Phe Thr Thr Leu Thr  
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att aat gga cgc ctg ttt gcc tgc ccg cga gag caa ttc gac tca ctg 95  
Ile Asn Gly Arg Leu Phe Ala Cys Pro Arg Glu Gln Phe Asp Ser Leu  
20 25 30

act ccc ttg cca gaa cag gag ggc ccg acc act ggg aca gtg ggg acg 143  
Thr Pro Leu Pro Glu Gln Glu Gly Pro Thr Thr Gly Thr Val Gly Thr  
35 40 45

ttt gaa ctg atg agc tcg aaa gac ttg gcg tac cag atg aca acg tat 191  
Phe Glu Leu Met Ser Ser Lys Asp Leu Ala Tyr Gln Met Thr Thr Tyr  
50 55 60

gac tgg gaa ctc ttc aac tgt gtg ctc gag ctg gag cta atc tac cac 239  
Asp Trp Glu Leu Phe Asn Cys Val Leu Glu Leu Leu Ile Tyr His  
65 70 75

aca ttt gga agg cat aat ttt aaa aag acc aca gca aac ttg gat ttg 287

Thr Phe Gly Arg His Asn Phe Lys Lys Thr Thr Ala Asn Leu Asp Leu			
80	85	90	95
ttc ctg agg aga ttt aat gaa att cag ttt tgg gtt gtc act gag atc			335
Phe Leu Arg Arg Phe Asn Glu Ile Gln Phe Trp Val Val Thr Glu Ile			
100	105	110	
tgc ctt tgt tcc cag ctc agc aag cgt gtt cag ctt ttg aaa aaa tgt			383
Cys Leu Cys Ser Gln Leu Ser Lys Arg Val Gln Leu Leu Lys Lys Cys			
115	120	125	
atc aag ata gcg gct cac tgc aag gag tac aaa aac ttg aat tcc ttc			431
Ile Lys Ile Ala Ala His Cys Lys Glu Tyr Lys Asn Leu Asn Ser Phe			
130	135	140	
ttc ggc atc gtc atg ggg ctc agt aac gtg gct gag agc cgc ctg gca			479
Phe Gly Ile Val Met Gly Leu Ser Asn Val Ala Glu Ser Arg Leu Ala			
145	150	155	
tta aca tgg gag aaa ctg ccg agc aag ttt aag aag ttc tat gcg gag			527
Leu Thr Trp Glu Lys Leu Pro Ser Lys Phe Lys Phe Tyr Ala Glu			
160	165	170	175
ttt gag agc tta atg gat cct tcc aga aat cac aag gcg tac agg ctg			575
Phe Glu Ser Leu Met Asp Pro Ser Arg Asn His Lys Ala Tyr Arg Leu			
180	185	190	
aca gca gct aaa ctg gag ccc ccc ctc atc cct ttc atg ccc ttg ctt			623
Thr Ala Ala Lys Leu Glu Pro Pro Leu Ile Pro Phe Met Pro Leu Leu			
195	200	205	
att aaa gat atg aca ttt act cat gag ggg aac aag aca ttc att gac			671
Ile Lys Asp Met Thr Phe Thr His Glu Gly Asn Lys Thr Phe Ile Asp			
210	215	220	
aat cta gta aac ttt gaa aaa atg cgc atg att gca aat act gcc aga			719
Asn Leu Val Asn Phe Glu Lys Met Arg Met Ile Ala Asn Thr Ala Arg			
225	230	235	
acg gtg cgc tac tac agg agc cag cca ttc aat ccg gat gct gct caa			767
Thr Val Arg Tyr Tyr Arg Ser Gln Pro Phe Asn Pro Asp Ala Ala Gln			
240	245	250	255
gct aat aag aac cat cag gat gtc cgg agt tat gta cgg caa tta aat			815
Ala Asn Lys Asn His Gln Asp Val Arg Ser Tyr Val Arg Gln Leu Asn			
260	265	270	
gtg att gac aac cag aga act tta tca cag atg tca cac aga tta gag			863
Val Ile Asp Asn Gln Arg Thr Leu Ser Gln Met Ser His Arg Leu Glu			
275	280	285	
cct cgc agg cca tagacatctg cagtccccag agtcatgctc cgtctccagt			915
Pro Arg Arg Pro			
290			
ccacaatctt tcaaaagatg ctgtgtatgc tactactgac tgtgttgctt ctagagaatt			975

ccccagaatg	agcaagagac	acccctcgag	agcccccgg	ggccacatcc	tgcttccga	1035
ccacacagga	gaaggatctg	tcttgtctaa	cgcggacatg	ccgttagctt	ggaaccatca	1095
gctgttagtca	tcttcttcac	ggtggcaca	ccaccgcagg	ctcacgtgaa	ggcataacct	1155
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tgaaacatta	tgactgtca	gtctgttaatt	tcggaatgat	ctatagaata	atatgtttac	1455
attgtaactt	ttaaaaactt	acaaatcagg	attacacaca	tgagaattcc	actaagaaac	1515
accaaggttc	ttaatatatcg	cagcgttaag	atagaaagta	acatttcaga	agagcacaat	1575
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 <213> Rattus norvegicus

<400> 16

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							20		25				30		

Pro	Leu	Pro	Glu	Gln	Glu	Gly	Pro	Thr	Thr	Gly	Thr	Val	Gly	Thr	Phe
							35		40			45			

Glu	Leu	Met	Ser	Ser	Lys	Asp	Leu	Ala	Tyr	Gln	Met	Thr	Thr	Tyr	Asp
					50			55		60					

Trp Glu Leu Phe Asn Cys Val Leu Glu Leu Ile Tyr His Thr  
65 70 75 80

Phe Gly Arg His Asn Phe Lys Lys Thr Thr Ala Asn Leu Asp Leu Phe  
85 90 95

Leu Arg Arg Phe Asn Glu Ile Gln Phe Trp Val Val Thr Glu Ile Cys  
100 105 110

Leu Cys Ser Gln Leu Ser Lys Arg Val Gln Leu Leu Lys Lys Cys Ile  
115 120 125

Lys Ile Ala Ala His Cys Lys Glu Tyr Lys Asn Leu Asn Ser Phe Phe  
130 135 140

Gly Ile Val Met Gly Leu Ser Asn Val Ala Glu Ser Arg Leu Ala Leu  
145 150 155 160

Thr Trp Glu Lys Leu Pro Ser Lys Phe Lys Lys Phe Tyr Ala Glu Phe  
165 170 175

Glu Ser Leu Met Asp Pro Ser Arg Asn His Lys Ala Tyr Arg Leu Thr  
180 185 190

Ala Ala Lys Leu Glu Pro Pro Leu Ile Pro Phe Met Pro Leu Leu Ile  
195 200 205

Lys Asp Met Thr Phe Thr His Glu Gly Asn Lys Thr Phe Ile Asp Asn  
210 215 220

Leu Val Asn Phe Glu Lys Met Arg Met Ile Ala Asn Thr Ala Arg Thr  
225 230 235 240

Val Arg Tyr Tyr Arg Ser Gln Pro Phe Asn Pro Asp Ala Ala Gln Ala  
245 250 255

Asn Lys Asn His Gln Asp Val Arg Ser Tyr Val Arg Gln Leu Asn Val  
260 265 270

Ile Asp Asn Gln Arg Thr Leu Ser Gln Met Ser His Arg Leu Glu Pro  
275 280 285

Arg Arg Pro  
290

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<212> DNA  
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<222> (407) .. (2953)

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tggagaaat atcgacagta tatggcagga cttctggctc ctcctt atg gta tta 415  
Met Val Leu  
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tgg aaa cgg gct cta aca atg aca gga ttc ctg aca agg aga aca cac 463  
Trp Lys Arg Ala Leu Thr Met Thr Gly Phe Leu Thr Arg Arg Thr His  
5 10 15  
ctc att gaa cct cac gtt cct ctt cgt cct gct aac acc att acc aag 511  
Leu Ile Glu Pro His Val Pro Leu Arg Pro Ala Asn Thr Ile Thr Lys  
20 25 30 35  
gtc cct tca gag aag atc ctc aga gct gga aaa att tta cga aat gcc 559  
Val Pro Ser Glu Lys Ile Leu Arg Ala Gly Lys Ile Leu Arg Asn Ala  
40 45 50  
att ctc tct cga gca cct cac atg ata aga gat aga aaa tac cac cta 607  
Ile Leu Ser Arg Ala Pro His Met Ile Arg Asp Arg Lys Tyr His Leu  
55 60 65  
aag aca tac aga caa tgc tgt gtg gga act gaa ctg gtg gac tgg atg 655  
Lys Thr Tyr Arg Gln Cys Cys Val Gly Thr Glu Leu Val Asp Trp Met  
70 75 80  
atc gac gag aca cca tgt gtt cac tcc cgg act caa gct gtt ggc atg 703  
Ile Asp Glu Thr Pro Cys Val His Ser Arg Thr Gln Ala Val Gly Met  
85 90 95  
tgg caa gtc ctg tta gaa gat ggt gtt ctc aac cac gtg gac cag gag 751  
Trp Gln Val Leu Leu Glu Asp Gly Val Leu Asn His Val Asp Gln Glu

100	105	110	115	
cac cat ttc caa gac ttt tat tta ttc tat cga ttt ctg gat gat gag				799
His His Phe Gln Asp Phe Tyr Leu Phe Tyr Arg Phe Leu Asp Asp Glu				
120		125		130
cac gag gat gcc cct ttg cct act gag gag gag aag aag gag tgt gat				847
His Glu Asp Ala Pro Leu Pro Thr Glu Glu Glu Lys Lys Glu Cys Asp				
135		140		145
gag gag ctc cag gac acc atg ctg ctg tca cag atg ggc ccc gac				895
Glu Glu Leu Gln Asp Thr Met Leu Leu Leu Ser Gln Met Gly Pro Asp				
150		155		160
gcc cac atg agg atg atc ctt cgc aaa cca cct ggc cag agg act gtg				943
Ala His Met Arg Met Ile Leu Arg Lys Pro Pro Gly Gln Arg Thr Val				
165		170		175
gat gac cta gag att atc tat gag gag ctt ctt cat att aaa gcc tta				991
Asp Asp Leu Glu Ile Ile Tyr Glu Glu Leu Leu His Ile Lys Ala Leu				
180		185		190
tcc cat ctt tct acc aca gtg aaa cga gag tta gca ggt gtt ctc att				1039
Ser His Leu Ser Thr Thr Val Lys Arg Glu Leu Ala Gly Val Leu Ile				
200		205		210
ttt gag tct cac gcc aaa gga ggg act gtg ttg ttt aac cag ggg gaa				1087
Phe Glu Ser His Ala Lys Gly Gly Thr Val Leu Phe Asn Gln Gly Glu				
215		220		225
gaa ggt acc tcc tgg tac att att cta aaa gga tca gtg aat gta gtc				1135
Glu Gly Thr Ser Trp Tyr Ile Ile Leu Lys Gly Ser Val Asn Val Val				
230		235		240
att tac ggc aag ggt gtg gtc tgc acc ctg cat gaa gga gat gac ttc				1183
Ile Tyr Gly Lys Gly Val Val Cys Thr Leu His Glu Gly Asp Asp Phe				
245		250		255
ggc aag tta gca cta gtg aat gat gcc cca cga gct gcc tct atc gtc				1231
Gly Lys Leu Ala Leu Val Asn Asp Ala Pro Arg Ala Ala Ser Ile Val				
260		265		270
tta cga gaa gat aac tgc cat ttc tta aga gta gac aag gag gat ttc				1279
Leu Arg Glu Asp Asn Cys His Phe Leu Arg Val Asp Lys Glu Asp Phe				
280		285		290
aac cgg atc cta agg gac gtg gag gcg aat aca gtc aga ctt aaa gaa				1327
Asn Arg Ile Leu Arg Asp Val Glu Ala Asn Thr Val Arg Leu Lys Glu				
295		300		305
cat gac caa gat gtc ttg gtg ctg gag aag gtc cca gca ggg aac aga				1375
His Asp Gln Asp Val Leu Val Leu Glu Lys Val Pro Ala Gly Asn Arg				
310		315		320
gct tct aat caa gga aac tca cag cct cag caa aag tat act gtg atg				1423
Ala Ser Asn Gln Gly Asn Ser Gln Pro Gln Gln Lys Tyr Thr Val Met				
325		330		335

tca gga aca cct gaa aaa att tta gag cat ttt cta gaa aca ata cgc Ser Gly Thr Pro Glu Lys Ile Leu Glu His Phe Leu Glu Thr Ile Arg 340 345 350 355	1471
ctt gag gca act tta aat gaa gca aca gat tct gtt tta aat gac ttt Leu Glu Ala Thr Leu Asn Glu Ala Thr Asp Ser Val Leu Asn Asp Phe 360 365 370	1519
att atg atg cac tgt gtt ttt atg cca aat acc cag ctt tgc ccg gca Ile Met Met His Cys Val Phe Met Pro Asn Thr Gln Leu Cys Pro Ala 375 380 385	1567
ctg gtg gcc cac tac cac gca cag cct tca caa ggt aca gaa cag gag Leu Val Ala His Tyr His Ala Gln Pro Ser Gln Gly Thr Glu Gln Glu 390 395 400	1615
aaa atg gat tat gcc ctc aac aat aag agg cga gtc atc cgc ctg gtt Lys Met Asp Tyr Ala Leu Asn Asn Lys Arg Arg Val Ile Arg Leu Val 405 410 415	1663
cta cag tgg gct gcc atg tat gga gac ctc ctg caa gag gat gac gta Leu Gln Trp Ala Ala Met Tyr Gly Asp Leu Leu Gln Glu Asp Asp Val 420 425 430 435	1711
tct atg gcc ttc ctg gag gag ttt tat gta tct gta tca gat gat gcc Ser Met Ala Phe Leu Glu Glu Phe Tyr Val Ser Val Ser Asp Asp Ala 440 445 450	1759
cgg atg att gct gcc ctc aag gag caa ctg cca gag ttg gag aag att Arg Met Ile Ala Ala Leu Lys Glu Gln Leu Pro Glu Leu Glu Lys Ile 455 460 465	1807
gtc aag caa atc tca gaa gat gca aag gca cca caa aag aag cac aag Val Lys Gln Ile Ser Glu Asp Ala Lys Ala Pro Gln Lys Lys His Lys 470 475 480	1855
gtt ctt ttg caa cag ttc aat acg ggc gat gag aga gca cag aag cgc Val Leu Leu Gln Gln Phe Asn Thr Gly Asp Glu Arg Ala Gln Lys Arg 485 490 495	1903
cag cct atc cgc ggc tct gat gaa gtt ctg ttt aag gtc tat tgc atg Gln Pro Ile Arg Gly Ser Asp Glu Val Leu Phe Lys Val Tyr Cys Met 500 505 510 515	1951
gac cac acc tac aca acc att cgg gtg cca gtg gcc act tcg gtg aag Asp His Thr Tyr Thr Ile Arg Val Pro Val Ala Thr Ser Val Lys 520 525 530	1999
gaa gtc atc agt gca gtt gcc gac aag ctg ggc tcc ggg gag ggc ctg Glu Val Ile Ser Ala Val Ala Asp Lys Leu Gly Ser Gly Glu Gly Leu 535 540 545	2047
atc ata gtc aag atg agt tcc gga gga gaa aag gtg gtg ctc aaa cct Ile Ile Val Lys Met Ser Ser Gly Gly Glu Lys Val Val Leu Lys Pro 550 555 560	2095

aat gat gtt tca gta ttt acg acg ctc acc att aat gga cgc ctg ttt Asn Asp Val Ser Val Phe Thr Thr Leu Thr Ile Asn Gly Arg Leu Phe 565 570 575	2143
gct tgc ccg cga gag caa ttc gat tca ctg act ccc tta cca gaa cag Ala Cys Pro Arg Glu Gln Phe Asp Ser Leu Thr Pro Leu Pro Glu Gln 580 585 590 595	2191
gaa ggc cca act gtt gga aca gtg gga act ttt gaa ctg atg agc tcc Glu Gly Pro Thr Val Gly Thr Val Gly Thr Phe Glu Leu Met Ser Ser 600 605 610	2239
aaa gat tta gca tac cag atg aca att tat gat tgg gaa ctc ttc aac Lys Asp Leu Ala Tyr Gln Met Thr Ile Tyr Asp Trp Glu Leu Phe Asn 615 620 625	2287
tgc gtg cat gag ctg gag cta atc tat cac aca ttt gga agg cat aat Cys Val His Glu Leu Glu Leu Ile Tyr His Thr Phe Gly Arg His Asn 630 635 640	2335
ttt aaa aag acc aca gca aac ttg gat ttg ttc ctg agg aga ttt aat Phe Lys Lys Thr Thr Ala Asn Leu Asp Leu Phe Leu Arg Arg Phe Asn 645 650 655	2383
gaa att cag ttt tgg gtc gtc act gag atc tgc ctt tgt tct cag ctc Glu Ile Gln Phe Trp Val Val Thr Glu Ile Cys Leu Cys Ser Gln Leu 660 665 670 675	2431
agc aag cgt gtt cag cta tta aaa aaa ttt att aag ata gca gcc cac Ser Lys Arg Val Gln Leu Leu Lys Lys Phe Ile Lys Ile Ala Ala His 680 685 690	2479
tgt aag gag tat aaa aat ctg aat tcc ttt ttt gcc atc gtc atg gga Cys Lys Glu Tyr Lys Asn Leu Asn Ser Phe Phe Ala Ile Val Met Gly 695 700 705	2527
cta agt aac att gct gtg agc cgc ttg gca cta acg tgg gag aaa ctg Leu Ser Asn Ile Ala Val Ser Arg Leu Ala Leu Thr Trp Glu Lys Leu 710 715 720	2575
cca agc aag ttc aag aag ttc tat gcg gag ttt gaa agt tta atg gac Pro Ser Lys Phe Lys Phe Tyr Ala Glu Phe Glu Ser Leu Met Asp 725 730 735	2623
cct tca agg aac cac agg gcc tac agg ctg aca gta gct aag ctg gaa Pro Ser Arg Asn His Arg Ala Tyr Arg Leu Thr Val Ala Lys Leu Glu 740 745 750 755	2671
cct cct ctc atc ccc ttc atg cct ttg ctc att aaa gat atg aca ttt Pro Pro Leu Ile Pro Phe Met Pro Leu Leu Ile Lys Asp Met Thr Phe 760 765 770	2719
act cat gag ggg aac aag acg ttc att gac aat cta gta aac ttt gaa Thr His Glu Gly Asn Lys Thr Phe Ile Asp Asn Leu Val Asn Phe Glu 775 780 785	2767
aaa atg cgc atg att gca aat acg gcc aga aca gtg aga tac tac agg	2815

Lys Met Arg Met Ile Ala Asn Thr Ala Arg Thr Val Arg Tyr Tyr Arg			
790	795	800	
agc caa ccc ttc aat cct gat gca gct caa gct aat aag aac cat cag			2863
Ser Gln Pro Phe Asn Pro Asp Ala Ala Gln Ala Asn Lys Asn His Gln			
805	810	815	
gat gtc cggtat gta cggtcaa tta aat gtg att gac aac cag aga			2911
Asp Val Arg Ser Tyr Val Arg Gln Leu Asn Val Ile Asp Asn Gln Arg			
820	825	830	835
act tta tca cag atg tca cac aga tta gag cct cgt cga cca			2953
Thr Leu Ser Gln Met Ser His Arg Leu Glu Pro Arg Arg Pro			
840	845		
tagacatttc aaatgccccaa agcaacagtt tgtctccagt ccacaatttt caaaaatgcc			3013
<210> 18			
<211> 849			
<212> PRT			
<213> Homo sapiens			
<400> 18			
Met Val Leu Trp Lys Arg Ala Leu Thr Met Thr Gly Phe Leu Thr Arg			
1	5	10	15
Arg Thr His Leu Ile Glu Pro His Val Pro Leu Arg Pro Ala Asn Thr			
20	25	30	
Ile Thr Lys Val Pro Ser Glu Lys Ile Leu Arg Ala Gly Lys Ile Leu			
35	40	45	
Arg Asn Ala Ile Leu Ser Arg Ala Pro His Met Ile Arg Asp Arg Lys			
50	55	60	
Tyr His Leu Lys Thr Tyr Arg Gln Cys Cys Val Gly Thr Glu Leu Val			
65	70	75	80
Asp Trp Met Ile Asp Glu Thr Pro Cys Val His Ser Arg Thr Gln Ala			
85	90	95	
Val Gly Met Trp Gln Val Leu Leu Glu Asp Gly Val Leu Asn His Val			
100	105	110	
Asp Gln Glu His His Phe Gln Asp Phe Tyr Leu Phe Tyr Arg Phe Leu			
115	120	125	

Asp Asp Glu His Glu Asp Ala Pro Leu Pro Thr Glu Glu Glu Lys Lys  
130 135 140

Glu Cys Asp Glu Glu Leu Gln Asp Thr Met Leu Leu Leu Ser Gln Met  
145 150 155 160

Gly Pro Asp Ala His Met Arg Met Ile Leu Arg Lys Pro Pro Gly Gln  
165 170 175

Arg Thr Val Asp Asp Leu Glu Ile Ile Tyr Glu Glu Leu Leu His Ile  
180 185 190

Lys Ala Leu Ser His Leu Ser Thr Thr Val Lys Arg Glu Leu Ala Gly  
195 200 205

Val Leu Ile Phe Glu Ser His Ala Lys Gly Gly Thr Val Leu Phe Asn  
210 215 220

Gln Gly Glu Glu Gly Thr Ser Trp Tyr Ile Ile Leu Lys Gly Ser Val  
225 230 235 240

Asn Val Val Ile Tyr Gly Lys Gly Val Val Cys Thr Leu His Glu Gly  
245 250 255

Asp Asp Phe Gly Lys Leu Ala Leu Val Asn Asp Ala Pro Arg Ala Ala  
260 265 270

Ser Ile Val Leu Arg Glu Asp Asn Cys His Phe Leu Arg Val Asp Lys  
275 280 285

Glu Asp Phe Asn Arg Ile Leu Arg Asp Val Glu Ala Asn Thr Val Arg  
290 295 300

Leu Lys Glu His Asp Gln Asp Val Leu Val Leu Glu Lys Val Pro Ala  
305 310 315 320

Gly Asn Arg Ala Ser Asn Gln Gly Asn Ser Gln Pro Gln Gln Lys Tyr  
325 330 335

Thr Val Met Ser Gly Thr Pro Glu Lys Ile Leu Glu His Phe Leu Glu  
340 345 350

Thr Ile Arg Leu Glu Ala Thr Leu Asn Glu Ala Thr Asp Ser Val Leu

355

360

365

Asn Asp Phe Ile Met Met His Cys Val Phe Met Pro Asn Thr Gln Leu  
370 375 380

Cys Pro Ala Leu Val Ala His Tyr His Ala Gln Pro Ser Gln Gly Thr  
385 390 395 400

Glu Gln Glu Lys Met Asp Tyr Ala Leu Asn Asn Lys Arg Arg Val Ile  
405 410 415

Arg Leu Val Leu Gln Trp Ala Ala Met Tyr Gly Asp Leu Leu Gln Glu  
420 425 430

Asp Asp Val Ser Met Ala Phe Leu Glu Glu Phe Tyr Val Ser Val Ser  
435 440 445

Asp Asp Ala Arg Met Ile Ala Ala Leu Lys Glu Gln Leu Pro Glu Leu  
450 455 460

Glu Lys Ile Val Lys Gln Ile Ser Glu Asp Ala Lys Ala Pro Gln Lys  
465 470 475 480

Lys His Lys Val Leu Leu Gln Gln Phe Asn Thr Gly Asp Glu Arg Ala  
485 490 495

Gln Lys Arg Gln Pro Ile Arg Gly Ser Asp Glu Val Leu Phe Lys Val  
500 505 510

Tyr Cys Met Asp His Thr Tyr Thr Thr Ile Arg Val Pro Val Ala Thr  
515 520 525

Ser Val Lys Glu Val Ile Ser Ala Val Ala Asp Lys Leu Gly Ser Gly  
530 535 540

Glu Gly Leu Ile Ile Val Lys Met Ser Ser Gly Gly Glu Lys Val Val  
545 550 555 560

Leu Lys Pro Asn Asp Val Ser Val Phe Thr Thr Leu Thr Ile Asn Gly  
565 570 575

Arg Leu Phe Ala Cys Pro Arg Glu Gln Phe Asp Ser Leu Thr Pro Leu  
580 585 590

Pro Glu Gln Glu Gly Pro Thr Val Gly Thr Val Gly Thr Phe Glu Leu  
595 600 605

Met Ser Ser Lys Asp Leu Ala Tyr Gln Met Thr Ile Tyr Asp Trp Glu  
610 615 620

Leu Phe Asn Cys Val His Glu Leu Glu Leu Ile Tyr His Thr Phe Gly  
625 630 635 640

Arg His Asn Phe Lys Lys Thr Thr Ala Asn Leu Asp Leu Phe Leu Arg  
645 650 655

Arg Phe Asn Glu Ile Gln Phe Trp Val Val Thr Glu Ile Cys Leu Cys  
660 665 670

Ser Gln Leu Ser Lys Arg Val Gln Leu Leu Lys Lys Phe Ile Lys Ile  
675 680 685

Ala Ala His Cys Lys Glu Tyr Lys Asn Leu Asn Ser Phe Phe Ala Ile  
690 695 700

Val Met Gly Leu Ser Asn Ile Ala Val Ser Arg Leu Ala Leu Thr Trp  
705 710 715 720

Glu Lys Leu Pro Ser Lys Phe Lys Lys Phe Tyr Ala Glu Phe Glu Ser  
725 730 735

Leu Met Asp Pro Ser Arg Asn His Arg Ala Tyr Arg Leu Thr Val Ala  
740 745 750

Lys Leu Glu Pro Pro Leu Ile Pro Phe Met Pro Leu Leu Ile Lys Asp  
755 760 765

Met Thr Phe Thr His Glu Gly Asn Lys Thr Phe Ile Asp Asn Leu Val  
770 775 780

Asn Phe Glu Lys Met Arg Met Ile Ala Asn Thr Ala Arg Thr Val Arg  
785 790 795 800

Tyr Tyr Arg Ser Gln Pro Phe Asn Pro Asp Ala Ala Gln Ala Asn Lys  
805 810 815

Asn His Gln Asp Val Arg Ser Tyr Val Arg Gln Leu Asn Val Ile Asp  
820 825 830

Asn Gln Arg Thr Leu Ser Gln Met Ser His Arg Leu Glu Pro Arg Arg  
835 840 845

Pro

<210> 19  
<211> 24  
<212> PRT  
<213> *Caenorhabditis elegans*

<400> 19

Phe Val Gln Ala Ser Pro Ser Asp Ile Ser Thr Ser Leu Ser His Ile  
1 5 10 15

Asp Tyr Arg Val Leu Ser Arg Ile  
20

<210> 20  
<211> 43  
<212> PRT  
<213> *Caenorhabditis elegans*

<400> 20

Arg Ala Glu Ile Leu Val Lys Phe Val His Val Ala Lys His Leu Arg  
1 5 10 15

Lys Ile Asn Asn Phe Asn Thr Leu Met Ser Val Val Gly Gly Ile Thr  
20 25 30

His Ser Ser Val Ala Arg Leu Ala Lys Thr Tyr  
35 40

<210> 21  
<211> 22  
<212> PRT  
<213> *Caenorhabditis elegans*

<400> 21

Phe Arg Ile Pro Ile Ile Gly Val His Leu Lys Asp Leu Val Ala Ile  
1 5 10 15

Asn Cys Ser Gly Ala Asn  
20

<210> 22  
<211> 24  
<212> PRT  
<213> Homo sapiens

<400> 22

Leu His Asp Phe His Ser His Glu Ile Ala Glu Gln Leu Thr Leu Leu  
1 5 10 15

Asp Ala Glu Leu Phe Tyr Lys Ile  
20

<210> 23  
<211> 41  
<212> PRT  
<213> Homo sapiens

<400> 23

Arg Glu Arg Leu Leu Leu Lys Phe Ile Lys Ile Met Lys His Leu Arg  
1 5 10 15

Lys Leu Asn Asn Phe Asn Ser Tyr Leu Ala Ile Leu Ser Ala Leu Asp  
20 25 30

Ser Ala Pro Ile Arg Arg Leu Glu Trp  
35 40

<210> 24  
<211> 22  
<212> PRT  
<213> Homo sapiens

<400> 24

Pro Cys Ile Pro Tyr Leu Gly Leu Ile Leu Gln Asp Leu Thr Phe Val  
1 5 10 15

His Leu Gly Asn Pro Asp  
20

<210> 25  
<211> 24  
<212> PRT

<213> Mus musculus

<400> 25

Leu Leu Asp Ile Asp Pro Tyr Thr Tyr Ala Thr Gln Leu Thr Val Leu  
1 5 10 15

Glu His Asp Leu Tyr Leu Arg Ile  
20

<210> 26

<211> 43

<212> PRT

<213> Mus musculus

<400> 26

Arg Ser Lys Leu Thr Gln Tyr Phe Val Thr Val Ala Gln His Cys Lys  
1 5 10 15

Glu Leu Asn Asn Phe Ser Ser Met Thr Ala Ile Val Ser Ala Leu Tyr  
20 25 30

Ser Ser Pro Ile Tyr Arg Leu Lys Lys Thr Trp  
35 40

<210> 27

<211> 22

<212> PRT

<213> Mus musculus

<400> 27

Ala Cys Val Pro Phe Phe Gly Val Tyr Leu Ser Asp Leu Thr Phe Thr  
1 5 10 15

Phe Val Gly Asn Pro Asp  
20

<210> 28

<211> 24

<212> PRT

<213> Rattus rattus

<400> 28

Phe Glu Asn His Ser Ala Met Glu Ile Ala Glu Gln Leu Thr Leu Leu  
1 5 10 15

Asp His Leu Val Phe Lys Ser Ile  
20

<210> 29  
<211> 43  
<212> PRT  
<213> Rattus rattus

<400> 29

Arg Ala Ser Thr Ile Glu Lys Trp Val Ala Val Ala Asp Ile Cys Arg  
1 5 10 15

Cys Leu His Asn Tyr Asn Ala Val Leu Glu Ile Thr Ser Ser Ile Asn  
20 25 30

Arg Ser Ala Ile Phe Arg Leu Lys Lys Thr Trp  
35 40

<210> 30  
<211> 22  
<212> PRT  
<213> Rattus rattus

<400> 30

Pro Cys Val Pro Tyr Leu Gly Met Tyr Leu Thr Asp Leu Ala Phe Leu  
1 5 10 15

Glu Glu Gly Thr Pro Asn  
20

<210> 31  
<211> 24  
<212> PRT  
<213> Homo sapiens

<400> 31

Leu Leu Thr Leu His Pro Ile Glu Ile Ala Arg Gln Leu Thr Leu Leu  
1 5 10 15

Glu Ser Asp Leu Tyr Arg Ala Val  
20

<210> 32  
<211> 43  
<212> PRT  
<213> Homo sapiens

<400> 32

Arg Val Ala Val Val Ser Arg Ile Ile Glu Ile Leu Gln Val Phe Gln  
1 5 10 15

Glu Leu Asn Asn Phe Asn Gly Val Leu Glu Val Val Ser Ala Met Asn  
20 25 30

Ser Ser Pro Val Tyr Arg Leu Asp Arg Thr Phe  
35 40

<210> 33

<211> 23

<212> PRT

<213> Homo sapiens

<400> 33

Pro Pro Cys Val Pro Phe Phe Gly Ile Tyr Leu Thr Asn Ile Leu Lys  
1 5 10 15

Thr Glu Glu Gly Asn Pro Glu  
20

<210> 34

<211> 24

<212> PRT

<213> Saccharomyces cerevisiae

<400> 34

Ala Leu Asn Val Ser Pro Trp Ser Leu Ala Lys Thr Leu Thr Leu Leu  
1 5 10 15

Glu Ser Ser Leu Tyr Leu Asp Ile  
20

<210> 35

<211> 43

<212> PRT

<213> Saccharomyces cerevisiae

<400> 35

Gln Thr His Thr Ile Ser Tyr Trp Leu Gln Val Ala Leu Ala Cys Leu  
1 5 10 15

Tyr Leu Arg Asn Leu Asn Ser Leu Ala Ser Ile Ile Thr Ser Leu Gln

20

25

30

Asn His Ser Ile Glu Arg Leu Ser Leu Pro Ile  
35 40

<210> 36  
<211> 22  
<212> PRT  
<213> *Saccharomyces cerevisiae*

<400> 36

Pro Cys Val Pro Phe Thr Ser Leu Leu Ile Arg Asp Ile Thr Phe Ile  
1 5 10 15

Arg Asp Gly Asn Asp Thr  
20

<210> 37  
<211> 20  
<212> PRT  
<213> *Caenorhabditis elegans*

<400> 37

Ala Val Phe Lys His Tyr Asp His Asp Arg Asp Gly Phe Ile Ser Gln  
1 5 10 15

Glu Glu Phe Gln  
20

<210> 38  
<211> 20  
<212> PRT  
<213> *Homo sapiens*

<400> 38

Glu Ala Phe Ser Leu Phe Asp Lys Asp Gly Asp Gly Thr Ile Thr Thr  
1 5 10 15

Lys Phe Leu Gly  
20

<210> 39  
<211> 20  
<212> PRT  
<213> *Homo sapiens*

<400> 39

Leu Met Leu Lys Leu Phe Asp Ser Asn Asn Asp Gly Lys Leu Glu Leu  
1 5 10 15

Thr Glu Met Ala  
20

<210> 40  
<211> 20  
<212> PRT  
<213> Homo sapiens

<400> 40

Phe Ala Phe Arg Ile Tyr Asp Met Asp Lys Asp Gly Tyr Ile Ser Asn  
1 5 10 15

Gly Glu Leu Phe  
20

<210> 41  
<211> 20  
<212> PRT  
<213> Homo sapiens

<400> 41

Lys Val Phe His Met Leu Asp Lys Asp Lys Ser Gly Phe Ile Glu Glu  
1 5 10 15

Asp Glu Leu Gly  
20

<210> 42  
<211> 20  
<212> PRT  
<213> Homo sapiens

<400> 42

Glu Cys Phe Arg Ile Phe Asp Arg Lys Ala Asp Gly Tyr Ile Asp Pro  
1 5 10 15

Glu Glu Leu Ala  
20

<210> 43  
<211> 50

<212> PRT

<213> *Caenorhabditis elegans*

<400> 43

His Asn Phe His Glu Thr Thr Phe Leu Thr Pro Thr Thr Cys Asn His  
1 5 10 15

Cys Asn Lys Leu Leu Trp Gly Ile Leu Arg Gln Gly Phe Lys Cys Lys  
20 25 30

Asp Cys Gly Leu Ala Val His Ser Cys Cys Lys Ser Asn Ala Val Ala  
35 40 45

Glu Cys  
50

<210> 44

<211> 50

<212> PRT

<213> *Homo sapiens*

<400> 44

His Lys Phe Ile Ala Arg Phe Phe Lys Gln Pro Thr Phe Cys Ser His  
1 5 10 15

Cys Thr Asp Phe Ile Trp Gly Phe Gly Lys Gln Gly Phe Gln Cys Gln  
20 25 30

Val Cys Cys Phe Val Val His Lys Arg Cys His Glu Phe Val Thr Phe  
35 40 45

Ser Cys  
50

<210> 45

<211> 50

<212> PRT

<213> *Homo sapiens*

<400> 45

His Lys Phe Thr Ala Arg Phe Phe Lys Gln Pro Thr Phe Cys Ser His  
1 5 10 15

Cys Thr Asp Phe Ile Trp Gly Phe Gly Lys Gln Gly Phe Gln Cys Gln  
20 25 30

Val Cys Cys Phe Val Val His Lys Arg Cys His Glu Phe Val Thr Phe  
35 40 45

Ser Cys  
50

<210> 46  
<211> 50  
<212> PRT  
<213> Homo sapiens

<400> 46

His Lys Phe Thr Ala Arg Phe Phe Lys Gln Pro Thr Phe Cys Ser His  
1 5 10 15

Cys Thr Asp Phe Ile Trp Gly Ile Gly Lys Gln Gly Leu Gln Cys Gln  
20 25 30

Val Cys Ser Phe Val Val His Arg Arg Cys His Glu Phe Val Thr Phe  
35 40 45

Glu Cys  
50

<210> 47  
<211> 24  
<212> PRT  
<213> Caenorhabditis elegans

<400> 47

Leu His Leu Ile Asp Ser Gln Glu Leu Ala His Gln Leu Phe Leu Phe  
1 5 10 15

His Leu Gln Leu Leu Arg Ser Thr  
20

<210> 48  
<211> 43  
<212> PRT  
<213> Homo sapiens

<400> 48

Arg Val Gln Leu Leu Lys Lys Phe Ile Lys Ile Ala Ala His Cys Lys  
1 5 10 15

Glu Tyr Lys Asn Leu Asn Ser Phe Phe Ala Ile Val Met Gly Leu Ser  
20 25 30

Asn Ile Ala Val Ser Arg Leu Ala Leu Thr Trp  
35 40

<210> 49  
<211> 43  
<212> PRT  
<213> *Caenorhabditis elegans*

<400> 49

Arg Met Glu Ile Leu Lys Lys Phe Ile Ser Ile Ala Thr Ile Ala Arg  
1 5 10 15

Glu Tyr Arg Asp Leu Leu Thr Val Phe Ala Ile Thr Leu Gly Leu Ser  
20 25 30

Met Thr Ser Ile Ser Arg Leu Thr Leu Thr Trp  
35 40

<210> 50  
<211> 22  
<212> PRT  
<213> *Caenorhabditis elegans*

<400> 50

Pro Tyr Ile Pro Phe Val Pro Leu Ile Leu Lys Asp Leu Met Phe Ile  
1 5 10 15

His Gln Gly Asn Lys Ser  
20

<210> 51  
<211> 69  
<212> PRT  
<213> *Caenorhabditis elegans*

<400> 51

Val Phe Arg Gln Gly Glu Ile Gly Val Tyr Trp Tyr Ile Val Leu Lys  
1 5 10 15

Gly Ala Val Glu Val Asn Val Asn Gly Lys Ile Val Cys Leu Leu Arg  
20 25 30

Glu Gly Asp Asp Phe Gly Lys Leu Ala Leu Val Asn Asp Leu Pro Arg  
35 40 45

Ala Ala Thr Ile Val Thr Tyr Glu Asp Asp Ser Met Phe Leu Val Val  
50 55 60

Asp Lys His His Phe  
65

<210> 52  
<211> 67  
<212> PRT  
<213> Homo sapiens

<400> 52

Val Ile Gln Gln Gly Asp Glu Gly Asp Asn Phe Tyr Val Ile Asp Gln  
1 5 10 15

Gly Glu Thr Asp Val Tyr Val Asn Asn Glu Trp Ala Thr Val Gly Glu  
20 25 30

Gly Gly Ser Phe Gly Glu Leu Ala Leu Ile Tyr Gly Thr Pro Arg Ala  
35 40 45

Ala Thr Val Lys Ala Lys Thr Asn Val Lys Leu Trp Gly Ile Asp Arg  
50 55 60

Asp Ser Tyr  
65

<210> 53  
<211> 71  
<212> PRT  
<213> Homo sapiens

<400> 53

Val Ile Asp Gln Gly Asp Asp Gly Asp Asn Phe Tyr Val Ile Glu Arg  
1 5 10 15

Gly Thr Tyr Asp Ile Leu Val Thr Lys Asp Asn Gln Thr Arg Val Gly  
20 25 30

Gln Tyr Asp Asn Arg Gly Ser Phe Gly Glu Leu Ala Leu Met Tyr Asn

35

40

45

Thr Pro Arg Ala Ala Thr Ile Val Ala Thr Ser Glu Gly Ser Leu Trp  
50 55 60

Gly Leu Asp Arg Val Thr Phe  
65 70

<210> 54  
<211> 73  
<212> PRT  
<213> Homo sapiens

<400> 54

Ile Val Val Gln Gly Glu Pro Gly Asp Glu Phe Phe Ile Ile Leu Glu  
1 5 10 15

Gly Ser Ala Ala Val Leu Gln Arg Arg Ser Glu Asn Glu Glu Phe Val  
20 25 30

Val Gly Arg Leu Gly Pro Ser Asp Tyr Phe Gly Glu Ile Ala Leu Leu  
35 40 45

Met Asn Arg Pro Arg Ala Ala Thr Val Val Ala Arg Gly Pro Leu Lys  
50 55 60

Cys Val Lys Leu Asp Arg Pro Arg Phe  
65 70

<210> 55  
<211> 79  
<212> PRT  
<213> Homo sapiens

<400> 55

Ile Ile Thr Gln Gly Glu Lys Ala Asp Ser Phe Tyr Ile Ile Glu Ser  
1 5 10 15

Gly Glu Val Ser Ile Leu Ile Arg Ser Arg Thr Lys Ser Asn Lys Asp  
20 25 30

Gly Gly Asn Gln Glu Val Glu Ile Ala Arg His Lys Gly Gln Tyr Phe  
35 40 45

Gly Glu Leu Ala Leu Val Thr Asn Lys Pro Arg Ala Ala Ser Ala Tyr  
50 55 60

Ala Val Gly Asp Val Lys Cys Leu Val Met Asp Val Gln Ala Phe  
65 70 75

<210> 56  
<211> 67  
<212> PRT  
<213> Homo sapiens

<400> 56

Ile Ile Lys Glu Gly Asp Val Gly Ser Leu Val Tyr Val Met Glu Asp  
1 5 10 15

Gly Lys Val Glu Val Thr Lys Glu Gly Val Lys Cys Thr Met Gly Pro  
20 25 30

Gly Lys Val Phe Gly Glu Leu Ala Ile Leu Tyr Asn Cys Thr Arg Thr  
35 40 45

Ala Thr Val Lys Thr Leu Val Asn Val Lys Leu Trp Ala Ile Asp Arg  
50 55 60

Gln Cys Phe  
65

<210> 57  
<211> 67  
<212> PRT  
<213> Homo sapiens

<400> 57

Ile Ile Lys Glu Gly Asp Val Gly Ser Leu Val Tyr Val Met Glu Asp  
1 5 10 15

Gly Lys Val Glu Val Thr Lys Glu Gly Val Lys Cys Thr Met Gly Pro  
20 25 30

Gly Lys Val Phe Gly Glu Leu Ala Ile Leu Tyr Asn Cys Thr Arg Thr  
35 40 45

Ala Thr Val Lys Thr Leu Val Asn Val Lys Leu Trp Ala Ile Asp Arg  
50 55 60

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Trp Thr Thr Phe Gly Glu Leu Ala Ile Leu Tyr Asn Cys Thr Arg Thr  
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Ala Ser Val Lys Ala Ile Thr Asn Val Lys Thr Trp Ala Leu Asp Arg  
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Glu Val Phe  
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